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ECONOMICS OF THE MANUFACTURING BUSINESS

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PREFACE

THE factory system of production has developed in the course of time from the workroom of the craftsman. In the good old days of long ago, the craftsman who had become a master after having served his apprenticeship, set up a workshop. With the assistance of a small amount of capital, he took a few journeymen into his employment, and by the skilful use of his tools he made the products of his trade which, as a rule, he sold in the narrow circle of his fellow citizens—working mostly for orders. Since those days, conditions have greatly changed. The place of the modest workroom has been taken by the great factory installation with its extensive workrooms; large power motors set in motion the machinery which has taken the place of tools. Instead of a master with a few journeymen and apprentices, there is now required a well-organized army of workers, who are directed by the manager and his assistants with as much circumspection as an army is directed by its officers. The materials necessary for the work are brought in shiploads from all parts of the earth. A workman no longer makes the entire product, but merely serves a machine which manufactures the article. As the worker performs only one operation in the whole process of manufacture he has in a sense become a part of the machinery. The output of the products is so great that it can no longer be sold in one area of a town or country, but it must be distributed over all countries of the earth with all the art of commercial skill and acumen.

Instead of the modest means which were at the disposal of the small craftsman for the equipment and working of his business, millions of pounds are now invested in industry, furnished either by the large capitalists or by numerous shareholders from all classes of the population. Although it was agriculture which formerly employed the majority of the inhabitants of the country, to-day the majority of European States have been converted into industrial countries in which nearly one-half of the population are engaged in the factory system of production. Thus, the factory entrepreneur is dependent upon the world market both for the purchase

of his raw materials and also for the sale of his products. In the world market, however, competition determines the price, and those who are unable to cope with this competitive struggle are ruthlessly eliminated. The factory entrepreneur must close his establishment if he cannot offer his products as cheaply and in equally good quality as his foreign competitors. Hence, he is compelled to reduce the cost of production to a minimum. This end may be attained by—

1. The purchase of raw materials at the cheapest and most advantageous prices.
2. The fullest utilization and employment of these raw materials.
3. Continuous improvement in the processes of production and the perfection of all machinery.
4. The reduction of the cost of hand and machine labour.
5. The organization of a commercially trained sales department.
6. The understanding and proper manipulation of market conditions.

For the satisfaction of all these requirements, the manufacturer must be supported by an efficient technical and commercial organization, and must have the harmonious co-operation of all the factors of production.

With the object of furthering the realization of these ends, an attempt has been made in the following pages to present a brief but systematic survey of the organization of a modern manufacturing concern, and it is hoped that the book will be found useful by all those who are preparing for the various examinations in Commerce and Business Economics, to students of Accountancy, and also to those who are actively engaged in industry.

In conclusion I should like to take this opportunity of thanking Messrs. Kenrick & Jefferson, Ltd., for permitting me to reproduce the diagram inset facing page 8, and also to express my indebtedness to the Editor and to Mr. Noel Branton for the assistance which they have accorded me throughout the preparation of the MS.

W. A. STEWART JONES.

CARDIFF.

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ECONOMICS OF THE MANUFACTURING BUSINESS

CHAPTER I

INTRODUCTION

THE aim of the manufacturing undertaking, like that of every other enterprise engaged in industry, is to assist in transforming the resources of nature so as to render them suitable for the satisfaction of human wants. It achieves this end by working up raw and partly-finished materials into finished articles, producing a change in these materials in order to increase their values. In order to effect this transformation in the most efficient and satisfactory manner, the manufacturing undertaking draws freely upon the results of modern science and invention. The time for haphazard, rule-of-thumb methods has gone, and certain knowledge of the inner workings of manufacturing processes must take the place of vague speculations if success is to crown the work of the undertaking. Having thus assured himself of the technical perfection of his product, the manufacturer must press into his service the resources of modern commerce in order to distribute his goods amongst the consumers on terms most advantageous to himself, so that he may reap the benefit of his industry.

The manufacturing business employs, to a varying extent, three great factors in production—land, labour, and capital—but the success of the undertaking depends in no small measure upon the skill with which they are co-ordinated by what is sometimes known as the fourth factor—organization. A very superficial knowledge of the inner workings of a manufacturing concern, which is one of the most complex units in the economic system, will reveal the tremendous difficulties which confront the factor of organization. It must ensure that an adequate, but not excessive, supply of raw

material is always available to meet the requirements of production; it must so regulate the activities of the various manufacturing departments that all are employed to their full capacity, and at the same time an even flow of production is maintained throughout the plant; finally, it must develop a sales organization which is capable of disposing of the output of the factory in the shortest possible time and on the most favourable terms. Throughout all these operations the organization factor must contrive to combine the other three factors in such proportions that the manufacturing operations result in the maximum output of the highest possible quality, and at the same time ensure that the cost of production is kept at a minimum.

EVOLUTION OF MANUFACTURING TECHNIQUE. It has been said that man is essentially a tool-using animal, and it is certain that his efforts in this direction stretch back beyond the limits of recorded history. In the earliest stages of his evolution, man would probably select such natural objects as came to hand as being suitable for a given purpose. Before he had progressed very far, he realized that some things did not wholly conform to the required pattern but nevertheless could be made to do so by subjecting them to a process of modification. By the utilization of such rude appliances as came to hand, primitive man was enabled to add to the utility of natural objects. The artificial tool now made its appearance, and there arose a need for tools which would help to fashion more tools—a hammer-stone to chip a flint knife, a flint knife to carve a wooden club, and so on. Later on, when the flint worker found that by virtue of his special skill his wares were of a superior type and were sought after, and also found that he could devote his whole energy to this task and still make a living by bartering his products, we see the dawn, not only of specialization, but also of the manufacturing undertaking.

So long as man could subject his raw materials to only simple mechanical processes as chipping and grinding, his manufacturing activities were of necessity limited. When, however, he discovered that by the application of heat, not only the physical properties but also the chemical properties of certain minerals were in some cases changed, he made a big advance, and laid the foundations of the science of metallurgy. He gained an empirical knowledge of

the elementary properties of some of the commoner metals, how to blend them in alloys, to cast them in moulds, and to work upon them to fashion for himself better tools, thus widening the scope of his activities. At this point, however, his advance appeared to receive a check for a considerable period. While he continued to make minor advances and increase his perfection in such processes as he knew, manufacturing activities held a very subordinate position in his economic life. The basic principles of the science of mechanics were known, and the laws governing the operation of such simple contrivances as the lever, the inclined plane, the screw, and the pulley were understood, but were applied only in the construction of machines of a very rudimentary nature.

It was not until the latter half of the eighteenth century, when a combination of changes collectively known as the Industrial Revolution began to take effect, that the manufacturing concern, as we know it to-day, took its origin. One of the most fundamental changes was in connection with power. This is essential to the manufacturer's business, and had hitherto been furnished either by man himself or by animals and applied to his primitive machines. When he fashioned contrivances which were driven entirely by mechanical power—whether water or steam—he made an advance of the first importance leading to tremendous developments. Furnished with a new source of power, provided with new materials and methods for the construction of his machines, and learning the advantages of precision and standardization in manufacture, the stage was set for an enormous expansion in industrial activity.

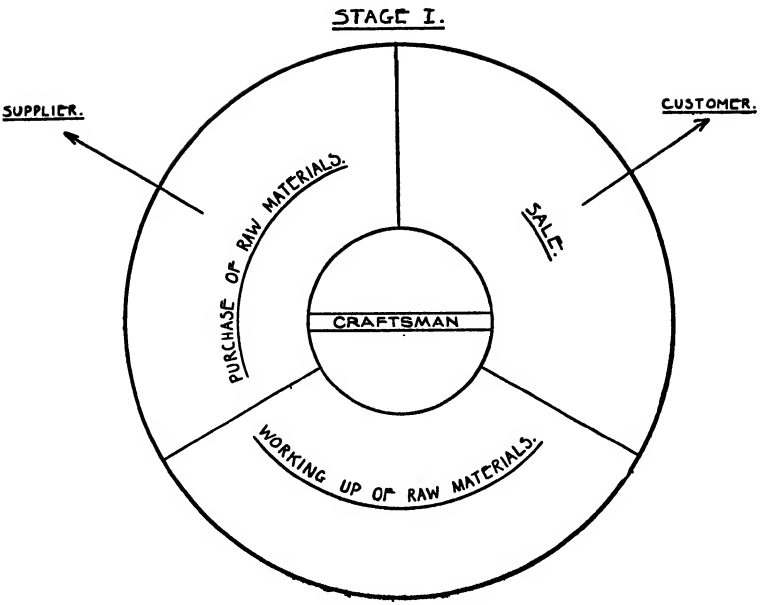
EVOLUTION OF MANUFACTURING ORGANIZATION. The changes in manufacturing technique outlined above were accompanied by changes in the organization of the business. The methods which might be employed in an eighteenth century concern employing fifty workers obviously could not meet the requirements of a great organization of the present day employing five thousand hands of all grades of skill. Side by side with the development of the technique of manufacture a scheme of organization had to be evolved to meet the new requirements. The beginnings of manufacture are to be found in the early handicraft system. Here, the small craftsman is engaged in the performance of all the operations of production. As a single individual, he undertakes the purchase of raw

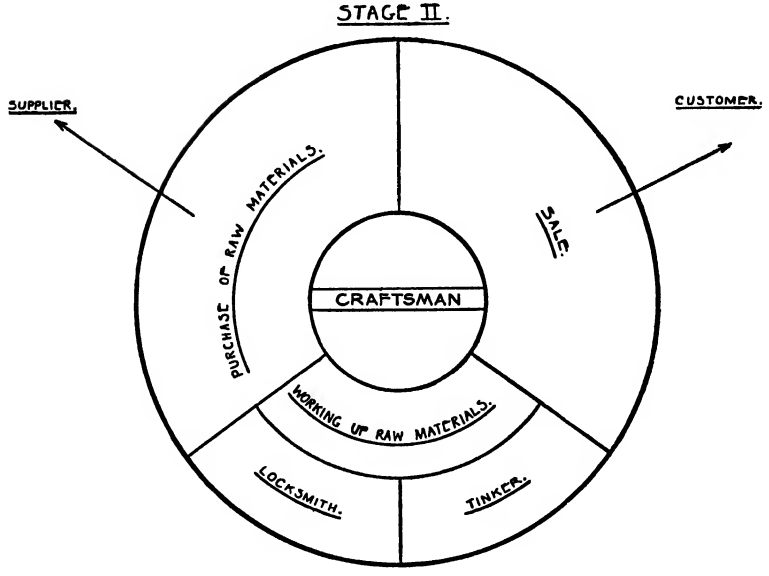
materials, the working up of these raw materials into a finished article, and, finally, sells the article to the consumer. A locksmith, for instance, who has invented a practical tool, will set to work to make this article by buying the raw materials, work them up, and then sell the finished article. This stage of development is illustrated by the first diagram on page 5.

If the work of the locksmith proves a success, he will soon want some assistance. He will, therefore, engage a journeyman locksmith and, perhaps, a tinker. The craftsman will confine himself more and more to the supervision of these assistants. He will attend to the buying of the raw materials and the sale of the goods, and, in addition, he will attend to the accounts which are necessary in any business. The second diagram on page 5 shows this stage of development.

Should the turnover of the craftsman increase still more, he may decide to install machinery. Hitherto he has used only hand tools, and with the introduction of machinery he expects to increase his output. The machines lead to the engagement of further workmen, such as planers and stampers, as well as an increase in the number of locksmiths and tinkers. The time has now arrived when the craftsman can no longer attend to the supervision of the workshop or to the buying and selling. He therefore engages a foreman for the workshop, and a clerk for the buying and selling, reserving to himself only the general management. The duty of the foreman is to see that the work in the workshop is properly executed, and to ensure that tools and materials are received at the right time by the workers. The business of the craftsman may now be described as a small manufacturing undertaking and is illustrated by the diagrams on page 7.

The master-craftsman does not wish to remain at this stage, but strives steadily to increase his output and his profit. He endeavours to achieve this end by improving his products, and by turning out the original article in a variety of shapes and sizes so that it may be used for many purposes. In order to increase the turnover he advertises, sends out circulars and engages travellers. The increased turnover entails a corresponding extension of the workshop, the employment of more workmen, and the acquisition of new machinery. To do this may be beyond his means, and he may


STAGE I.
SUPPLIER.
CUSTOMER.
PURCHASE OF RAW MATERIALS.
SALE.
CRAFTSMAN
WORKING UP OF RAW MATERIALS.

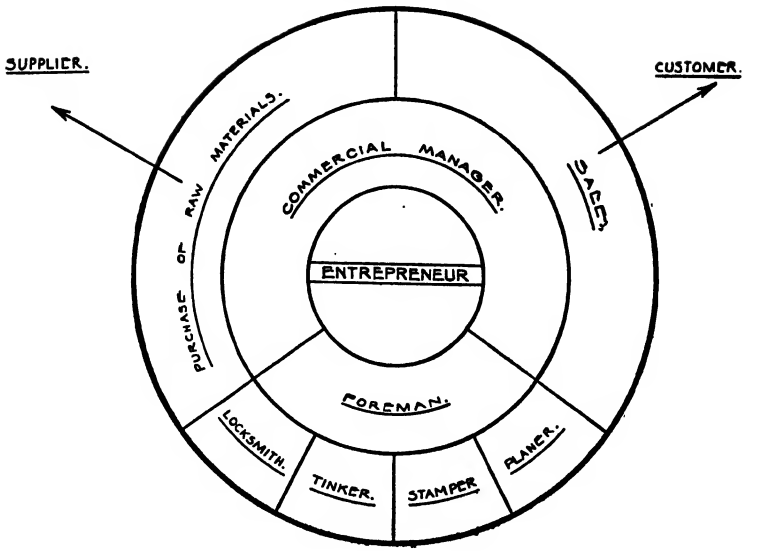

STAGE II.
SUPPLIER.
CUSTOMER.
PURCHASE OF RAW MATERIALS.
SALE.
CRAFTSMAN
WORKING UP RAW MATERIALS.
LOCKSMITH.
TINKER.

invite a number of other persons with whom he is acquainted to join with him in providing the necessary capital. They may form either a private or a public company in order to carry on the business, since this form of legal constitution is usually considered the best for a large-scale undertaking. In a big concern of this type, it becomes advisable to group together the various kinds of labour and machinery, and instead of one foreman, to employ several of them. Finally, he decides to appoint a Technical Manager for the purpose of controlling the whole of the manufacturing processes. The scheme of organization for such a large manufacturing business is illustrated by the diagram facing page 8.

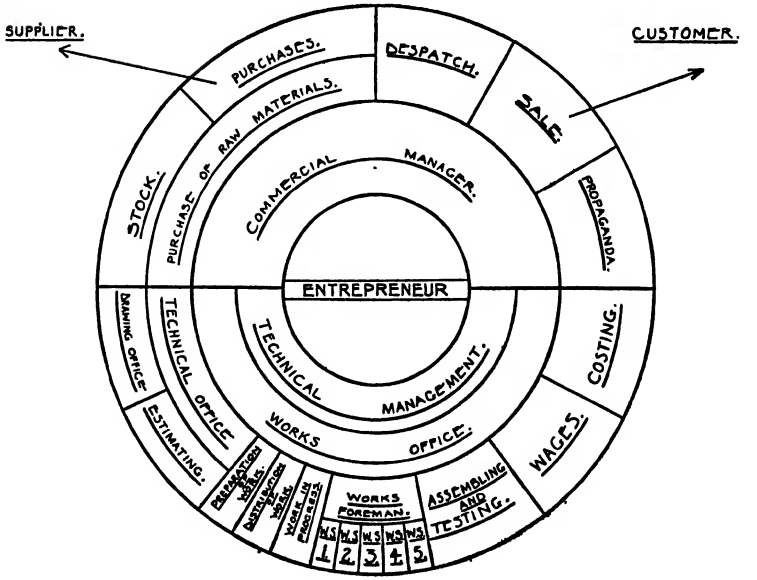
CO-OPERATION AND CO-ORDINATION WITHIN THE UNDERTAKING. Under the modern system of organization we see the business divided up into a number of departments, each of which has a definite function to perform. The duty of those responsible for the organization in respect of these departments is of a two-fold nature. They must so order the routine of each department that it is enabled to discharge its functions with the maximum of efficiency, and at the same time see that its external relations with the other departments are so ordered that all work together in harmony with a common aim—the advancement of the welfare of the business as a whole. In the course of this book we shall endeavour to obtain an insight into the internal working of each department, and at the same time obtain the wider view by seeing how the activities of the departments are co-ordinated and controlled by those responsible for the administration and management.

The manufacturing business may be divided into a technical and a commercial section. On the one hand we see manufacturing processes in operation which require a high degree of skill and specialized technical knowledge for their control, while on the other hand we find a commercial organization of the greatest complexity. If the undertaking is to have any hope of success there must be a high degree of co-operation between these factors, for neither can stand alone. Unless the commercial man can rely on a product of a certain technical standard in quantities sufficient to meet his needs, he cannot hope that his marketing operations will meet with permanent success. The technical man must remember that the production of the product is but the first stage and must be followed

STAGE III.



STAGE IV.



by the equally vital step of finding a market. There are those who say that the first aim of the undertaking is service, and that consideration of profit is a secondary matter. This may be so, yet we are safe in saying that unless a profit is made, the undertaking must ultimately pass out of existence and make way for its more successful competitors. If the commercial and the technical man work together in close co-operation, striving to understand and assist in solving the numerous problems which confront both of them, then the undertaking may well achieve both aims—earn a material reward in the shape of profits and benefit the community by efficient service.

TEST PAPER I

1. What is the aim of the manufacturing undertaking? How does it achieve this aim?
2. What are the factors of production employed in a manufacturing concern?
3. Enumerate some of the chief difficulties which confront the organizer of a manufacturing business.
4. Draw the diagrams on page 5 and say what you know of the activities of the small craftsman.
5. Trace the various stages through which the system of manufacture has passed from the business of the craftsman to the modern large-scale undertaking.
6. Copy the diagrams on page 7 and explain their meaning.
7. "If the undertaking is to have any hope of success there must be a high degree of co-operation between the manufacturing and the commercial processes." Expand and elucidate this statement.

CHAPTER II

The Establishment of the Undertaking

Since the motive for the establishment of a manufacturing undertaking is the expectation of profit, the primary cause of the establishment will always be something which has awakened this hope in the founder. It may be either a special advantage in connection with production or an advantage appertaining to the sale.

In the case of those concerns which are in the hands of one particular person (e.g. sole trading concerns and partnerships), the advantages of production may consist in a subjective quality or gift. Frequently, and especially in small-scale manufacture, the guiding motive is to be found in the training of the entrepreneur and the accidental circumstances which, through the influence of his parents, have drawn him into this or that particular trade.

Large-scale undertakings are called into existence where there are either particular advantages of production or where the conditions of sale favour the existence of the undertaking. The very first task of the founder is to recognize these advantages and to form a correct estimate of their exploitation. It cannot be denied that manufacturers at the present day do not fail to seize any opportunity of making a profit, but suffer rather from the tendency to over-estimate the advantages which present themselves. The over-estimation of the advantages of production is usually attributable to technical mistakes; on the other hand, the over-estimation of the prospects of sale arises from mistaken economic calculations.

Where there are sound reasons for the establishment of a manufacturing undertaking, the next step is to draw up preliminary estimates to show to what extent these reasons are justified.

THE SCHEME OF PROMOTION. The foundation of every business must be preceded by a scheme of promotion which provides the entrepreneur with a basis for estimating the probable success of the undertaking. In the promotion of large-scale undertakings, especially of those which require a large amount of fixed capital, it is necessary to estimate the probable results on the basis of the actual

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conditions. Hence, details of the whole undertaking would be drawn up showing the amount of capital required, the extent and results of the working, the probable output, the selling prices, and the anticipated profit. These calculations of the probable success of the undertaking are prepared in the form of estimates from which may be deduced predictions as to the future.

The entrepreneur must realize not only at the beginning of his undertaking but also during its continuance, what amount of capital is necessary and available from time to time. The ascertainment of the amount of capital required calls for knowledge not only of the nature of capital and the forms which it assumes in the undertaking, but also of any peculiar local conditions, the state of the labour market, and the conditions of demand and supply. With a knowledge of such data the need for capital may be calculated either for a particular season of the year or for a definite trading period.

In the case of a new undertaking the amount of capital required for the first year must cover the cost of the initial outlay, including interest on and depreciation of the fixed assets, and also a sufficient amount of circulating capital where this cannot be raised from the sale of the products.

In this connection it must be considered whether there are firm orders for the first year or whether it will be necessary to work for stock. In either case, during this period it may become necessary to increase the scale of the business on account of new orders or growth in demand; on the other hand it may have to be greatly reduced owing to a rise in the cost of production. These preliminary estimates of the working results of an undertaking as a whole are probable figures which may only approximate to actual facts. The nearer these estimates approach reality, the smaller is the risk, although the competition encountered by the undertaking will tend to be greater.

There are several reasons to account for the disparity between the preliminary estimates and the actual results. In the first place the preliminary estimates are always based upon current average prices of raw materials and upon the average rate of wages. The prevailing average prices, however, based upon statistics and sometimes arrived at by very superficial guesses may lead one astray.

For the success of a business it is essential that one should know approximately the stocks of raw materials and finished goods which may come into the market. The manufacturer continues to produce so long as the prices of the products are good, and he imagines he knows the number and capacity of his competitors fairly precisely, but all at once when the prices have reached a still higher figure, he discovers that other competitors—attracted by the high prices—have entered the field and that his former competitors manifest an unexpected capacity of output. Finally, in the face of these facts, prices remain stationary or may even decline. In addition, there may be a fluctuation in the demand especially in view of the increasing prices. This is more likely to be felt in articles of luxury, but in the case of necessaries it may not be felt to the same extent. From these remarks it will be seen that a preliminary estimate rarely tallies with the results of actual working. The estimate will approximate most closely to actual facts where it is possible to form an exact measurement of the costs of production and distribution.

Since a preliminary estimate may be drawn up in connection with the foundation of a new undertaking or in connection with the management of a going concern, it is possible to distinguish—

1. Estimates for the establishment of a business.
2. Estimates for the carrying on of a business.

Every estimate includes the figures of income and expenditure which may be expected during a certain period. Where the income is of a simple nature, we may dispense with the preliminary estimate and content ourselves with an estimate of costs. In large-scale undertakings, however, especially where the promotion or management of the business involves a large amount of responsibility, it is necessary to prepare a precise estimate of the probable income and expenditure.

CONTENTS OF THE PRELIMINARY ESTIMATE OR SCHEME OF PROMOTION. In the preparation of the preliminary estimate for a large-scale manufacturing concern, the *income* may be grouped under the following headings—

1. The proprietors' own capital.
2. Increase of capital by means of credit.

3. Income from the sale of products.

4. Miscellaneous receipts, such as the sale of or lease of land, interest on loans, and dividends on securities.

An examination of the balance sheet on page 13 will show that the capital of the business is not necessarily identical with the capital *owned* by the firm. It will also show (on the assets side) the way in which the capital is employed.

In the case of expenditure, the following particulars have to be taken into consideration—

1. *Fixed Capital.* (*a*) Promotion expenses and the cost of procuring the initial capital.

(*b*) The purchase of the land, the site, and sometimes the water-power.

(*c*) The erection of installations for the proper utilization of the water-power.

(*d*) Factory and other buildings.

(*e*) Heating and lighting installations.

(*f*) The purchase and installation of motors (steam and water turbines).

(*g*) The machinery necessary for the production of a given output of goods, together with the cost of its erection.

(*h*) Freight and general expenses incurred during the period of erection.

(*i*) Cost of starting the works and other unforeseen expenses.

(*j*) Interest on capital during the period of construction.

2. *Circulating Capital.* For the purpose of ascertaining this figure, it is necessary to estimate the probable working expenses for one year. Where the working capital can be turned over once only during that period—i.e. if a year elapses from the date of the purchase of the raw material till the moment when the product is paid for—the working capital is the same as the working costs for one year. On the other hand, if it is expected to turn over the capital twice, the working capital for one year is equal to one-half of the annual working expenses. Unless unforeseen expenditure arises, the working capital may be somewhat smaller since a portion only of the working expenses have to be paid at the very beginning of the year, whilst another portion is payable as it falls due (e.g. wages).

BALANCE SHEET OF THE X MANUFACTURING CO., LTD.

As at 31st December, 19—

LIABILITIES	£	£	ASSETS	£	£
Authorised Capital—			Goodwill		22,350
150,000 5 per cent Preference Shares of £1 each	150,000		Freehold Land, Buildings, and Houses	64,000	
150,000 Ordinary Shares of £1 each	150,000		Additions since last account	1,000	
	300,000				65,000
Issued Capital—			Plant, Machinery and Rolling Stock	95,000	
150,000 Preference Shares, fully paid	150,000		Additions since last account	3,000	
100,000 Ordinary Shares, fully paid	100,000			98,000	
	250,000		*Less* Depreciation	10,500	
Less calls unpaid	100				87,500
		249,900	Loose Tools and Trade Utensils	15,000	
Debentures: £40,000 4 per cent Debenture Stock	40,000		*Less* Depreciation	3,000	
Interest thereon unpaid	600				12,000
		40,600	Stores and Stock-in-trade at cost or current market rates		65,000
Reserve Account		50,000	Sundry Trade Debtors	48,000	
Sundry Creditors		15,000	*Less* reserved for doubtful Debts and Discounts	5,000	
					43,000
Dividends unclaimed		100	Investments—		
			Consols	30,000	
Profit and Loss Account—			Colonial Funds	25,000	
From last account	2,000		British Municipal Funds	10,000	
Balance from current year's trading	38,000		British Railway, Gas, and Water Stocks	10,000	
	40,000				75,000
			(Present market price, £74,150.)		
Less Preference Dividend paid	2,750	37,250	Bills Receivable		3,500
			Cash—		
			On Deposit	10,000	
			On Current Account and in hand	9,500	
					19,500
		£392,350			£392,350

3. *Working Expenses.* (*a*) Interest on the fixed and circulating capital.

(*b*) Depreciation (say, 1 per cent on land, about 2 per cent on buildings, and about 5 per cent on machinery and equipment).

(*c*) Purchase of raw materials of various kinds for a given output. From this must be deducted certain amounts for the sale of waste materials.

(*d*) Expenses of administration, office salaries and wages of superintendence, fire insurance, maintenance and upkeep of the machinery and buildings, travelling expenses, rates and taxes, packing materials, carriage, cartage, etc.

(*e*) Wages for a given number of male, female, and juvenile workers.

(*f*) 5 per cent selling commission on the value of the total output, where this cannot be sold direct.

4. *Gross and Net Profits.* (*a*) Calculation of the probable output from the estimated number of workers, machinery, and equipment, on the basis of 300 working days at, say, eight hours per day. Ascertainment of the average value.

(*b*) Deduction of the aforementioned working expenses, leaving the net profit as the result.

5. *Apportionment of the Anticipated Net Profit.* The determination of the portion of net profit which should be used for the repayment of loans, the amount to be carried to reserve funds, and the sum available for distribution amongst the shareholders or proprietors.

Finally, the dates should be fixed for the payment of the expenses incurred in the installation of the works and the amounts due for repayment of capital and interest. If it is not intended to complete immediately the whole of the works installation, but to begin production with only a portion of it, the expenses for the uncompleted portion may be met out of the proceeds from the sale of goods. Where the erection of the installation is spread over a long period, the interest on the borrowed capital should be met out of capital. Hence, the need for hastening the completion.

TEST PAPER II

1. What are the chief reasons for the establishment of manufacturing undertakings ?

2. Where sound reasons have been established for the flotation of a manufacturing undertaking, what is the next step to be taken by the promoter ?

3. What is meant by a scheme of promotion ? Of what chief items does it consist ?

4. What points should be taken into consideration in calculating the amount of capital required in a manufacturing business ?

5. Why do the preliminary estimates of the probable success of a manufacturing undertaking frequently fail to coincide with the actual results ?

6. Under what main headings may the income of a large-scale manufacturing concern be grouped ?

7. Copy the balance sheet on page 13 and bring out clearly the chief forms of capital indicated therein.

8. Write notes on the following: fixed capital ; circulating capital ; working expenses ; gross and net profit.

CHAPTER III

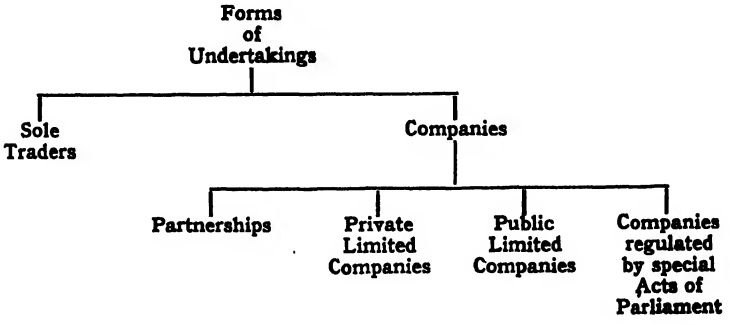
Forms of Undertakings

As a rule the responsibility for the conduct of a manufacturing undertaking rests upon the proprietor, whether it be owned by an individual or by a number of individuals. In the case of an undertaking owned by a single individual, the profit or loss will revert to this person. Although in these days the company form of undertaking is frequently met with, the sole trading concern is the original form of constitution. Whether it be an advantage or a disadvantage to depart from this original form and to select the company form depends upon the personal qualities of the entrepreneurs and their available capital, as well as upon the nature of the undertaking. It is not every entrepreneur who fits into a company undertaking, or every undertaking that is suitable for this form of management.

Since every form of economic combination demands the sacrifice of a certain amount of independence, and subordination to the regulations of the concern or to the terms of a contract, persons of great independence are not suitable for the company form of organization, or, at any rate, only when they find particularly suitable partners. Such independent persons prefer to enjoy complete responsibility, for only in this full responsibility do they find scope for the display of their energies. On the other hand, there are many persons who prefer not to have full responsibility, and who are well suited to some form of company organization, or who cannot even get on without partners because they lack the necessary initiative. Even the most capable and independent entrepreneur must submit to the articles of partnership if he lacks capital with which to start an undertaking or has insufficient to start it on a proper scale.

There are undertakings which are not suitable for the company form of organization. This company form must, therefore, adapt itself to the object of the undertaking. Manufacturing concerns which, in the purchase of raw materials and in the sale of their products, must be able to adapt themselves to the quickly changing

market conditions can thrive only under very elastic management, and under those forms of company organization which are also suitable to a trading concern. Those forms of company, however, which have a complicated and ponderous administration are suitable only for undertakings whose business takes a very regular course. Thus, we may divide manufacturing undertakings into the following main forms—



KINDS OF UNDERTAKINGS. If we group the forms of undertakings according to the degree of responsibility, freedom, risk to capital, and chance of profit, we have the following classification—

1. The Sole Trading Concern.
2. Partnership.
3. Private Limited Company.
4. Public Limited Company.
5. Regulated Concern.

The Sole Trading Concern. Unless the law prescribes otherwise, any one may open a manufacturing business. There are, however, certain legal restrictions in regard to both commodities and the qualifications of persons who propose to carry on a business. For trade in certain goods, such as poisons or alcoholic liquor, a licence must be obtained, and approval is also required for the sale of drugs. It is also important to bear in mind that contracts entered into by a person under 21 years of age are not usually binding. A widow can, of course, carry on a business as a sole trader; and now a married woman is capable of entering into contracts and rendering herself liable thereon *to the extent of her separate property*, and she may sue and be sued in all respects as if she were unmarried.

The legal capacity to carry on a business is not of itself sufficient to ensure success. A person who desires to enter into business as a manufacturer must be provided with sufficient *fixed and working capital.* In view of the easy way in which credit may be obtained in these days, many an employee holding a good position is tempted to start a business of his own on borrowed capital. The risk borne by the creditor, however, has frequently to be met by the payment of excessively high rates of interest, and this handicaps the business in its competition with others in the same line, as well as prevents the realization of a satisfactory rate of profit. A person who cannot start a business without credit will do well to find security in order to avoid the otherwise onerous conditions which might be imposed upon him by the lender.

Partnership. As defined by the Partnership Act, 1890, a partnership is the relation which subsists between a number of persons carrying on a business in common with a view to profit. It does not include companies which are registered under the Companies Acts, or incorporated by another Act. Persons who have entered into partnership are known as a firm, and their name is the firm name. No partnership may consist of more than twenty members, or, in the case of a bank, of more than ten members, unless it is registered as a company. If a partnership consists of more than ten or twenty persons as the case may be, it will constitute an illegal association. Hence, the members would not be able to enforce any claim for debts owing to them, but members would be liable to a creditor who dealt with them without notice of its illegal character.

In an ordinary partnership it is desirable that the terms arranged between the partners should be drawn up in the form of a deed known as the Articles of Partnership. These articles ought always to provide when the partnership is to begin and for how long it is to continue, because if no fixed term has been agreed upon it is a ***partnership at will*** only, with the result that any partner may terminate it at any moment on giving notice to all other partners of his intention to do so. The Articles of Partnership should also provide for—

1. The proportions in which the capital is to be contributed by the partners, and the proportions in which they are to be entitled to it when contributed.

2. The allowance of interest on capital and on advances respectively.

3. The division of profits and losses and the drawing up of the necessary accounts.

Since the passing of the Limited Partnership Act, 1907, a firm may now consist of one or more general partners, and one or more limited partners. A limited partner can subscribe a fixed sum of capital in the business and be liable only for that amount, provided he takes no active part in the management of the business The general partner or partners are liable for all debts and have no limitation of liability.

Private Limited Company. The registration of a business as a private company affords facilities to the testator whose capital is sunk in his own business to divide his estate among his relatives without disturbing the financial arrangements of the undertaking, and at the same time limiting the liability of those to whom the business is left. According to the Companies (Consolidation) Act, 1908, as modified by the Companies Act, 1913, a private company is one which by its Articles of Association—

1. Restricts the right to transfer its shares ;

2. Limits the number of its members exclusive of those who are or have been in the service of the company to fifty ; and

3. Prohibits any invitation to the public to subscribe for shares or debentures of the company.

These are three essentials, and the fact that the company does not issue an invitation to the public is not sufficient to constitute it a private company, but there must be specific provisions in the Articles of Association which preclude it from doing so.

Public Limited Company. A company under the Companies (Consolidation) Act, 1908, is an association of a number of members, the whole constituting one single person distinct from its members. Modern trade needs a large capital, which in the case of ordinary partnership could be obtained only by the combination of such a large number of partners as to interfere with the efficiency of management. Partnership is a combination of several persons, each one being the agent of the other and liable for all debts incurred in the business. Each partner has the right to take part in the management ; shares are not freely transferable, and the firm is

not a separate legal person. In the Public Limited Company shareholders are not one another's agents. They have no right to interfere in the business which is carried on by the officers, usually called directors. Shares are freely transferable, and the liability of each member is limited.

The essential difference between an incorporated company and a partnership should be very carefully noted. A partnership is merely the aggregate of its individual members, whereas a company is a body corporate or a corporation which, in point of law, is a person just as much as an individual, although to distinguish it from a natural person it is called an artificial or juristic person; that is to say, although a company has no physical existence, yet in contemplation of law it is in itself an entity separate and distinct from the members or shareholders who are interested in it.

In order to effect the registration of a company, the Memorandum of Association and Articles of Association, duly executed, together with the statutory declaration by the solicitor engaged in the formation of the company, or by a person named in the Articles as a director or secretary of the company, that the requirements of the Companies Acts have been complied with, must be lodged with the Registrar of Companies. The Registrar, on payment of the prescribed registration fee and stamp duties, files and retains the original Memorandum and Articles of Association, enters the name of the new company on the register, and issues a certificate of incorporation, which will be conclusive evidence that all the requirements of the Acts have been complied with and that the association is a company authorized to be registered under the Acts. The effect of registration is that the subscribers to the Memorandum of Association, together with such other persons as may be from time to time members of the company, become a body corporate by the name contained in the Memorandum, capable forthwith of exercising all the functions of an incorporated company and having perpetual succession and a common seal with power to hold land.

Regulated Companies. A company can be incorporated in only two other ways—either by Royal Charter, or in pursuance of an Act of Parliament. A company which is formed in the nature of a public utility company requiring special rights and privileges, e.g. a

railway or canal company, is generally formed by a special Act of Parliament. Such public concerns usually consist of undertakings of great national importance; which require large amounts of capital, yet may fail to attract private enterprise on an adequate scale because of the necessity of limiting profits or for some other reason; where unavoidable conditions of monopoly would render unregulated private enterprise dangerous; or where the private shareholder has ceased to perform a useful function. These characteristics are not only explanations, but justifications of public ownership or of regulation in the appropriate conditions. It follows that there is a necessary and important place for the public concern in the economic system. The problem is to evolve an efficient business organization for such concerns, to find room for various types intermediate between the public and the sole trading concern, and to define in the right way the field of operation appropriate to each type.

TEST PAPER III

1. What forms do skill and energy take in practice? Is it always advisable for a person to invest his skill and energy in his own business?
2. What kinds of concerns are best managed by sole traders? When is it beneficial to convert a sole trading concern into a partnership?
3. What disadvantages accompany the partnership form of organization?
4. Partnership capital is liable to disturbance by the death of a partner. How does the private company form of organization help to remedy this defect in partnership?
5. What is the general character of a partnership business? What must be the relations between the members of a successful partnership?
6. What are the essential characteristics of a private limited company?
7. What is the position of the limited partnership as compared with other forms of organization?
8. Why has a public limited company an advantage over a partnership in regard to continuity of management?
9. State the chief advantages of the company forms of constitution. Which form do you consider best suited for an ordinary manufacturing concern?
10. What are the chief points to be considered in deciding upon the form of constitution of a new manufacturing undertaking?

CHAPTER IV

Organization and Management

The organization and management of an undertaking is determined principally by its size and legal constitution. With regard to the latter, we have already seen that there are sole trading concerns, partnerships, and limited companies. There are certain relationships between the size and the legal form of an undertaking. Small undertakings are mostly sole trading concerns, and more rarely, ordinary or limited partnerships. Medium-sized undertakings are either sole trading concerns or partnerships, and more rarely, limited companies. Large-scale undertakings are usually public or private companies and sometimes partnerships, but rarely sole trading concerns.

As a rule, the sole trading concern is managed directly by the owner. If the business has assumed a large extent, some of the more important employees may be admitted into the management, for example, the chief clerk or the cashier. It sometimes happens in the case of large sole trading concerns that the owner abstains from active participation in the management and entrusts it to several persons who form a kind of board of management similar to that of a limited company. Partnerships are generally managed by the individual partners with unlimited liability, or at least by one of them, possibly with the assistance of some paid managers, who very often perform the function of checking the power of the managing partner in the interests of the other partners.

MANAGEMENT OF LARGE-SCALE UNDERTAKINGS. In large-scale undertakings there has developed a complete separation of ownership and management under the system of limited companies. Here, the shareholders are confronted by the board of directors. This systematic organization of the constituents of the company is not altered by the fact that the directors or the managing director may also be shareholders. On principle, the management ought to be in the hands of the board of directors, but in practice, its independence is restricted by the Memorandum and Articles of Association of the company.

In the organization and management of an undertaking two points have to be distinguished—

1. The direction and management of the undertaking in the narrow sense of the word.
2. The management and representation of the undertaking from the legal standpoint.

The management of a factory may be carried on by the directors on the principle of equal authority, or it may be arranged to have one managing director to whom all the others are subordinated. In the former case, the general management is in the hands of the committee of directors which has to decide on all questions which are not within the competency of any single director, as for example, in the case of matters which relate to several departments. This management, by several individuals, has all the disadvantages of a committee which is not only advisory, but also has executive functions, and therefore it is characterized by—

1. Inelasticity.
2. Lack of uniformity.
3. Divided responsibility.

The responsibility is vested not so much in the individual as in the committee, but in the course of time each director begins to consider himself the manager of his own particular section rather than a collective manager of the whole business. Differences of opinion may lead to continuous friction between directors having equal responsibility, and it is probable that their mutual rivalry will degenerate into a struggle which will be fought out at the expense of the undertaking.

The second method of control by the appointment of a managing director possesses the advantages of—

1. Elasticity and rapidity of action.
2. The concentration and consequent increase of responsibility.
3. Uniformity.

In this case the managing director is no longer the manager of a department and concurrently also a director, but he now becomes a director who can devote his full and undivided energies to the management of the undertaking. The disadvantage of this system is to be found in the possibility of one-sided management—the dependence of the undertaking upon one single person and the

difficulty of finding a person who is technically as well as commercially qualified.

Management, both by a committee of directors, and by a single managing director, has its advantages and disadvantages. In either case, results depend less upon the system than upon the persons. The work of a director is many-sided, whilst, as a rule, the director himself may only have a gift for a particular activity. The result is that in large-scale undertakings under a managing director his work has to be supplemented by sub-managers of the various branches of the undertaking.

The authority to represent a manufacturing undertaking in its relations to the outside world is fixed as follows: In the case of a sole trading concern or a partnership, the members themselves are usually regarded as the legal representatives. In the case of concerns with a fictitious name, these have to be registered with the Registrar of Joint Stock Companies in accordance with the provisions of the Registration of Business Names Act, 1916. In such cases the real names of the proprietors must be revealed to the outside world on all business documents. In the case of a company, it is of importance whether the sub-managers are official members of the board of directors and, therefore, possessed of rights and obligations as set forth in the Articles of Association and the Companies Act, or whether they are merely managers, with or without the power of procuration. In the former case they are subordinate to the managing director and, therefore, restricted to some extent in their internal authority, but in their dealings with the outside world they figure along with their superior as members of the board of directors.

QUALIFICATIONS OF THE MANAGING DIRECTOR. The choice of the managing director is of vital importance to the success of the undertaking, and the question arises from which profession should this person be selected. There are three callings from which the managing director of a manufacturing concern is usually recruited, namely, the commercial, the technical, and the legal. The question is, from which of these three should the managing director be chosen? The function of the administrator in industry is more that of an advisor than that of a manager, unless he has the necessary commercial and technical knowledge and experience. Though

many questions of law arise in the dealings of the undertaking with its customers, which the administration has to solve, yet these cases play a minor rôle in the management as a whole. The circumstances are different, of course, in the case of those industrial undertakings which are managed by the State or a Municipality.

The question whether a commercial or a technical man is to be preferred as a managing director is, strictly speaking, one which cannot be answered on principle. We will enumerate only a few points of view which may be of importance in individual cases—

1. Generally speaking, the fact that the aim of the business is to make a profit, and that the processes of manufacture are but a means to that end, would seem to speak in favour of a commercial director.

2. The commercial and technical elements do not possess the same relative importance in all industrial undertakings. There are those in which the technique predominates in the sense that technical knowledge is also necessary for such functions as the buying and selling which, as a rule, are services of a purely commercial nature. On the other hand, there are other undertakings in which the sphere of activity of the technical man is strictly limited to the manufacturing processes. Amongst the former are to be included those concerns which produce individual articles, for example, furniture, whilst the latter devote themselves to mass production. In industries which produce separate articles, manufacture them, purchase the necessary raw materials, and offer the finished article for sale, the technically trained staff will predominate. Here, the engineer will, as a rule, be more in his place than the merchant. The same remark also applies to the exploitation of a patent.

3. Of the commercial man as a managing director we expect that he will possess a certain amount of technical knowledge and experience; on the other hand, commercial knowledge will be expected of an engineer if he is the director. The question to be decided is whether, in the circumstances, the commercial man might more easily master the technical, or the technical man the commercial part of the work.

4. The management of a factory, according to whether a commercial man or a technical man is at its head will, as a rule, show

different tendencies, resulting from the contrast between the views of these two callings. The commercial man is anxious to make money, lower prime cost, obtain good selling prices, and a large turnover. To him, favourable financial results are more desirable than the production of an article of outstanding merit from a technical point of view. On the other hand, the technical man is primarily a manufacturer. He is more interested in the product, as such, and his predilection for excellence in production and better methods of manufacture may easily lead him to overlook the more vital factor—the financial success of the undertaking.

FUNCTIONS OF THE MANAGING DIRECTOR. The work of the managing director, that is, the organizer *par excellence* must also be carefully planned, and he must be liberated, as far as possible, from routine duties, so that he may preserve the necessary control over the whole establishment, thus discharging the chief responsibilities instead of devoting his time to details. In the organization of an undertaking it is a bad sign to see a person acting as director who is chiefly occupied in the performance of routine duties, who never has a minute's time, and who has to do everything in furious haste. Here, likewise, the principle must be applied that every person should be allotted that class of work for which he is best fitted.

The most valuable work which should devolve upon the director may be described as the work of control. In large concerns, important resolutions are taken in the form of conferences which likewise supply mutual information to the managers. The form of the conferences in which, in addition to the directors, the leading employees also share, varies greatly. There are concerns in which several conferences take place daily in connection with the incoming post, and where the conference initiates the settlement of current business. In other concerns, conferences take place only at certain intervals and have reference to more important affairs. In particular these conferences serve the purpose of making known the managerial policy, of exchanging ideas, and of discussing proposals for the improvement of the business.

The staff should be encouraged by the management to communicate any suggestions for improvements, not only in the manufacturing processes, but also in the organization and simplification

of the business. In a factory, almost every employee, if he is wide-awake, at times notices certain defects which remain hidden to the management, and the removal of which is in the interest of the whole concern. The means to this end are numerous, and may consist in the offer of prizes for desirable improvements, and the institution of consulting hours for the consideration of such suggestions. The staff conference should also be used as an occasion for bringing forward complaints and for checking any possible cause of friction, since, at these conferences, every one has the ear of the director.

DIVISION OF THE MANAGEMENT. In large undertakings, division of labour in the management is necessary. This division of labour results from the variety of tasks which have to be performed in a manufacturing undertaking. These include the work of the technical section which deals with production ; the commercial section which deals with purchases and sales, and the financial and administrative section. From the grouping of these tasks there arises a division of labour, which finds expression not only in the management but also in every other part of the business. The method of grouping the managerial duties differs greatly in different concerns. Frequently we find a two-fold division—a technical and a commercial side. There may be also a three-fold division—a technical management, a commercial management occupied solely with buying and selling, and an administrative management responsible for the remaining duties but especially for financial matters. There may also be a division according to products or according to localities.

In undertakings with extensive connections resulting from the amalgamation of several businesses, there is, in addition to the management of the individual works, a general manager of the whole undertaking, in connection with whom there is a central administration. This central administration which, so to say, constitutes the heart of the whole undertaking, has to formulate a uniform policy, and to ensure that the experiences of one part of the undertaking are exploited in the interests of all the different works. To attain this end, it is necessary that there should be a single authoritative body in the central administration whose function it is to suppress any conflicting opinions or contrary

dispositions in the whole organization. Its function is to make the most important decisions on general policy, and to distribute in a suitable manner the various activities within the central administration. To this end it is necessary to organize the central establishment into sections, each of which has to devote itself to a definite portion of the undertaking. Such departments by which the administration of the individual works is controlled, result from the treatment of the following matters—

1. Finance, that is, the procuring of capital, banking intercourse, collect on of debts, etc.
2. Accounts and statistics.
3. General business policy.
4. Sales.
5. Publicity and advertising.
6. Purchases of materials.
7. Supervision of manufacture.
8. Research.
9. Welfare.
10. Legal matters.

Analogous to the organization of the manufacturing business into a commercial and a technical section, the central administration of a large undertaking will also be similarly divided.

TECHNICAL ADMINISTRATION. This is in charge of the technical manager to whose functions belong the distribution of the available motive power, labour, and machinery, a point of great importance in concerns which manufacture a variety of articles. This activity is essential, especially from the standpoint of reducing the costs of production. The technical manager is the chief of the whole staff engaged in the technical work, including the technical sub-managers with their assistants, the engineers, the works officials, the foremen, and the workmen, as well as the stock-keepers, and sometimes also the wages and costing departments. In reality, however, these two departments belong to the commercial section.

As the centre of the technical administration, and under the immediate direction of the technical manager, we find in many factories the technical, or construction, or drawing office, whose function varies considerably although its work is essentially of a directing nature. It procures technical information, solves technical questions,

and issues instructions to the workshops. Among the tasks of this office are—

1. The drawing-up of plans and estimates for proposed new installations or alterations.
2. The execution of drawings, estimates, the carrying out of investigations referring to manufacture.
3. The preparation of the technical detail for the making of tenders.
4. Dealing with the technical correspondence.
5. The execution of the drawings.

Frequently a literary office is connected with the drawing office, whose function it is to collect technical papers, catalogues, and other technical information ; also the drawing-up of catalogues in foreign languages, and the carrying on of the technical propaganda. The technical office assumes a very important position in the construction of machines where the draftsmen employed have to prepare drawings for every machine and every portion of the machine, either on the basis of quotations or orders received. In some concerns the technical office is split up into a number of sections according to the kind of products.

The equivalent of the technical office of an engineering works is the laboratory of the chemical factory which supplies the whole concern with its working instructions, tests the products, supervises the process of manufacture, and endeavours to improve the method of production.

The various offices which are installed in a manufacturing business are subordinated to the technical office. These offices differ greatly in organization, but for the most part they support the managers of the various factory departments and act as administrative units. A certain amount of book-keeping, such as the preparation of wages lists, etc., must be compiled in the works, and the various documents which pass between one department and another are made out in the works offices. In some cases, these offices also function as a wages department, that is, as a substitute for a central wages administration. In some cases they also have to administer a stock of materials and partly finished goods which are continually being used in the works.

COMMERCIAL ADMINISTRATION. Among the tasks which fall

within the scope of the commercial administration, the following may be mentioned—

1. The financial transactions of the undertaking. These include the maintenance of an adequate cash reserve, the granting of credit, the making of investments, and the execution of business with the bank.

2. The application of measures for the prevention of fraud and dishonesty. These apply chiefly to the administration of cash, stock, purchases, and sales.

3. The control of the undertaking by a proper system of accounts, and the drawing-up of the periodical Profit and Loss Account and the Balance Sheet.

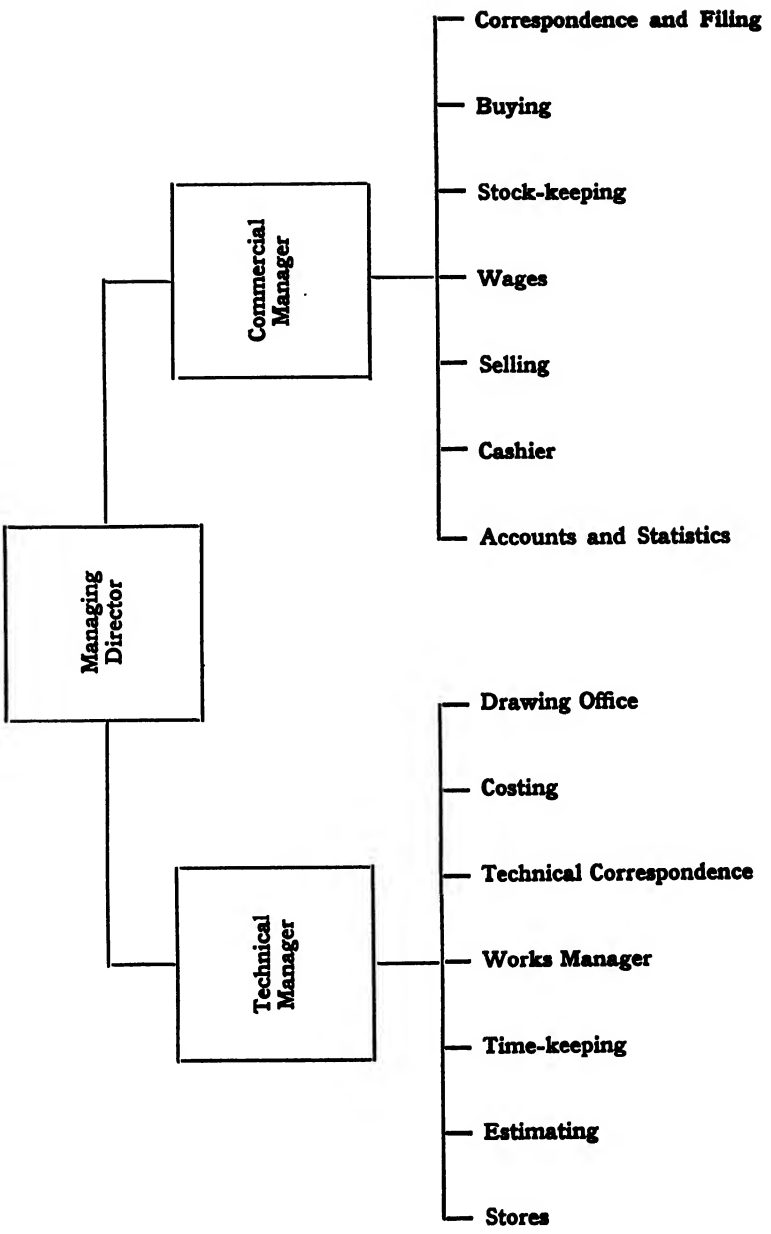
The various managers of the departments are subordinate to the commercial manager, and some of these managers may be granted power of attorney with authority to act for the firm. In large works, the commercial manager is sometimes assisted by various officials who, under his immediate direction, deal with the more important confidential matters. The staff is generally described as the secretariat. Within the commercial administration, the following functions are usually performed by separate departments—

1. Correspondence and filing.
2. Buying.
3. Stock-keeping.
4. Payment of wages.
5. Selling and dispatch.
6. Cash administration.
7. Keeping accounts, including costing and statistics.

A typical scheme of organization for a larger manufacturing concern is shown in the diagram on page 31. We must now consider the various departments in greater detail.

TEST PAPER IV

1. To what extent do the size and legal constitution of an undertaking affect its organization and management ?
2. What are the disadvantages of entrusting the management of a large factory to a committee of directors ?
3. Enumerate the advantages and disadvantages of management (*a*) by a committee of directors, (*b*) by a single managing director.


Managing Director
Commercial Manager
Correspondence and Filing
Buying
Stock-keeping
Wages
Selling
Cashier
Accounts and Statistics
Technical Manager
Drawing Office
Costing
Technical Correspondence
Works Manager
Time-keeping
Estimating
Stores

4. What, in your opinion, should be the qualifications of the managing director of a large manufacturing concern ?

5. Enumerate the chief duties which devolve upon a managing director.

6. Outline the principles on which the managing director delegates duties among the staff of a manufacturing business.

7. What are the tasks which have to be performed by the technical administration ?

8. Draw the diagram on page 31 and explain the duties which fall to the commercial manager.

CHAPTER V

The Correspondence Department

The correspondence department forms a section of the commercial administration and is frequently called the counting-house, especially if it is combined with the buying and selling departments where there is no separate section for these. The counting-house is generally situated at the entrance to the factory, and every visitor is, in the first instance, brought to this department. In many cases the stranger who is admitted to the factory is presented with a card on which are inscribed the purpose of his visit and the section which he may enter. This is done for the purpose of preserving the secrets of the business, and also to avoid the possibility of strangers passing directly into the factory or the stock-rooms in order to make the personal acquaintance of factory managers, buyers, and stock-keepers.

FUNCTIONS OF THE CORRESPONDENCE. Among the chief functions of the counting-house are to be found the execution of the correspondence, both with the customers and with the various branches of the factory. In the organization of the counting-house, special attention has to be paid to those measures which will facilitate the speedy dispatch of the correspondence. In all such arrangements, two points of view have to be considered—

1. The knowledge of the correspondence of a business is important as general information. It is not only important that the managing director and the technical manager should have their correspondence laid before them for their consideration before it is answered, but they should also be acquainted with the whole correspondence, at least to such an extent that they are aware of the various transactions which are passing through the business.

2. The work of dealing with the incoming letters ought to be spread evenly over the working hours, and a beginning should be made as soon as possible after the receipt of the incoming post, thus helping to avoid any irregularity of work. This should also be done in the interest of a speedy treatment of all incoming inquiries.

The difficulty of organization consists in finding out a method which answers both these requirements, although it is scarcely possible to combine them. The managing director demands that the incoming post be placed before him immediately after receipt so that he may be acquainted with current business. Likewise, the other managers also desire to have a glance at the correspondence, especially in so far as it refers to their particular sections. The usual method is to call the departmental managers one after the other to the director, where they look through the incoming correspondence and give their instructions with the concurrence of the director, or the correspondence may be sent to them for their remarks. Another method is for the director to call together the

OWEN AND SONS

Telephone: NEWPORT 712.

COMMERCIAL STREET,
NEWPORT, MON.
12th February, 19..

THE SOUTH WALES ENGINEERING CO., LTD.,
EAST MOORS,
CARDIFF.

Dear Sirs,

Enclosed please find cheque for £57 3s. 6d., in settlement of the statement of our account herewith. Please acknowledge receipt, and oblige,

Yours faithfully,
OWEN AND SONS.

Received
13th Feb., 19..
No. 41.

A/cs.	
Filing Ref. No.	98

departmental managers either once or several times a day, and at this conference all incoming letters are discussed. This method, however, leads to the loss of several valuable hours during which the correspondents are idle, whereas subsequently they have to deal with the correspondence in feverish haste.

In order to remove these difficulties, many manufacturing concerns have adopted the plan that immediately after the receipt of the post, a list is drawn up by the commercial office of the letters received together with a short description of their contents. This is laid before the director, who marks those letters which he desires to see in the original; in some cases, the clerk opening the letters hands the important communications over to the director on his own initiative. The remaining letters which have reference to current business are then dealt with by the correspondents.

When the director has conferred with the staff concerned, the letters of greatest importance are then handed over to the correspondence department. Thus far such arrangements answer the first requisite of a properly organized correspondence department, that is, the letters are replied to without delay. The second requisite, however, is only partially fulfilled, for only a portion of the incoming correspondence is placed before the director. Hence, it is necessary that the remaining letters should subsequently be sent to the director, that is, as soon as they have been dealt with by the correspondence office, and a copy of the reply should also be submitted. These letters, therefore, are placed daily into a portfolio together with the copies of the replies. This portfolio is sent round to all the officials indicated, each of whom initials a slip after he has taken note of the correspondence.

TREATMENT OF THE CORRESPONDENCE. In most concerns it is customary to put a date stamp upon the incoming correspondence. This stamp often has a numbering arrangement attached to it, which automatically numbers the letters, so that every letter, in addition to the date of receipt, also bears a running number. In firms where the correspondence is small the letter is then entered together with its number into a Letters Received Book, but this book is rarely found in modern offices.

In addition to the date and number, the letters are frequently impressed on receipt with a rubber stamp which marks the letter

with a number of blank squares, in which may be inserted the initials of the departments to which the letter has to be presented for the settlement of the various items. Thus—

A/cs.	
Filing Ref. No. 98	

When the letter has been attended to it is returned to the filing department, and in a special blank space the reference number of the file on which the letter is to be placed is quoted. The control of the outgoing letters is effected by means of the Postage Book. Since loose copies of letters are now taken in most offices, it is no longer possible to check the outgoing correspondence by means of a Letter Copy Book. Therefore, when the letters are ready for post, they are entered in the Postage Book—the date, name, and address, and the amount of postage being shown. The clerk in charge of the Postage Book receives a certain sum for his disbursements, which covers postages, telegrams, and sometimes office materials.

THE CENTRALIZATION OF THE CORRESPONDENCE DEPARTMENT. The question sometimes arises whether it is better to centralize the whole correspondence of a business, or whether it is preferable to attach a correspondence section to each department. The general business correspondence should undoubtedly be centralized, and no department should be allowed to evade the correspondence department by corresponding directly with business friends. Strict adherence to this principle is justified on the grounds that under such a system the director would not be aware of the departmental correspondence, and employees would be tempted to sign the letters themselves in order to cover up any mistakes.

In practice, decentralization of the correspondence is found only in regard to the technical section. Of course, in many factories, the technical correspondence is dealt with in the commercial office. Such an organization is justified by the fact that it facilitates the oversight of the whole business, simplifies the filing, and admits of

a better employment of the labour and appliances in the correspondence department. The institution of a separate technical correspondence office depends upon the significance of the technical factor in the particular undertakings. Where this asserts itself strongly—a thing which happens chiefly in concerns manufacturing single articles—a separate technical correspondence department might be introduced. Especially would this be the case if the technical correspondence was extensive, and if the manufacture was such that the correspondents had to possess technical knowledge in order to answer the letters.

By the provision of a centralized correspondence department, the staff is able to deal expeditiously with pressure from any particular department, and thus avoid the difficulty which often arises when the shorthand-typists belonging to one department cannot cope with a rush of work, while those attached to another department have little or nothing to do. The advantages of centralization may be enumerated as follows—

1. Economy of staff, accommodation, and equipment.
2. Capacity to cope with rushes of work.
3. Equal distribution of work, thus avoiding the dislocation of the arrangements which follows when pressure of work arises in any particular department.
4. The flow of work through the department will be more regular than if it were divided.
5. Overtime will be eliminated (by late rotas of duty if necessary).
6. It will be possible to standardize the quality and style of the work.

THE FILING DEPARTMENT. The purpose of this department is to ensure the systematic preservation of the correspondence, and also of the technical papers, drawings, books, and notes of every kind. This material is of such a diverse nature that it is impossible to keep it all in a single place. There are usually separate files for cash vouchers which are kept in the cashier's office; files for invoices kept in the accounts department; files for drawings which are kept in the drawing office of the technical section; or for catalogues and printed advertisements which are kept in the purchasing or the sales department, whilst account books and other notes are generally kept where they are used.

The principal part of filing consists in the storing of the incoming letters and copies of the outgoing letters. It is obvious that the safe custody of these documents is a matter of great importance, and especially is this the case where correspondence is exchanged involving questions of policy or precedent, and where future reference may be required at any moment, to a particular letter or document. Certain statutes, by making documents the sole means of proof in certain cases, render the introduction of a proper system of filing practically obligatory in any business controlled by a prudent management, since the copies of all incoming and outgoing correspondence may be submitted as legal evidence.

In order that the filing department may fulfil its purpose, all letters and other documents which are to be preserved should be returned to this department after having been dealt with. The retention in the different departments of the commercial administration of certain letters which specially affect them ought not to be permitted, for no department should be allowed to start a subsidiary filing department of its own. It is one of the greatest defects in organization to allow each department to conduct its own filing simply because it happens to be a little more convenient for the clerk to have directly at hand the correspondence with which he is dealing. The installation of several filing departments leads to disorder, and frequently long searches have to be made if one desires to trace the correspondence with a customer whose letters deal with different matters and which, for that reason, were filed away in different files. A centralized and uniform filing system saves time and money, even though it may entail the employment of a special filing clerk.

Where centralized filing is not adopted, the system of filing should be based on the following lines—

1. A special file for important letters and documents which are of a confidential nature, such as contracts, deeds, etc. This file is frequently kept in the secretary's office.

2 The filing of the technical correspondence which should be attached to the technical office.

3. The filing of general commercial correspondence which should be kept in the counting-house.

There are three different principles according to which the

incoming letters, telegrams, invoices, etc., may be filed, namely, the chronological, the alphabetical, and according to subject.

CHRONOLOGICAL FILING. In practice this is very frequently employed for incoming invoices, receipts, and for other vouchers which constitute the basis of the accounts. The vouchers are put away into spring files, or are pasted into guard books and consecutively numbered. The numbering begins afresh with every new trading period. Every file must have a register in which each firm is entered together with the number of the registered vouchers. Alternatively, the folio column of the Purchases Ledger may contain the number of each incoming invoice so that it may be referred to in case of need. It is also customary to cross-reference each invoice, the reference taking the form of a fraction, the numerator of which gives the number of the previous invoice, and the denominator the number of the succeeding invoice from the same firm.

INVOICE *348.*
10/762

THE NATIONAL OFFICE EQUIPMENT CO., LTD.
36 CANNON STREET
LONDON, E.C.4

THE SOUTH WALES ENGINEERING CO., LTD.,
EAST MOORS,
CARDIFF.

19..		£	s.	d.
Feb. 11	*One "Simplex" Loose-leaf Binder* .		*15*	–

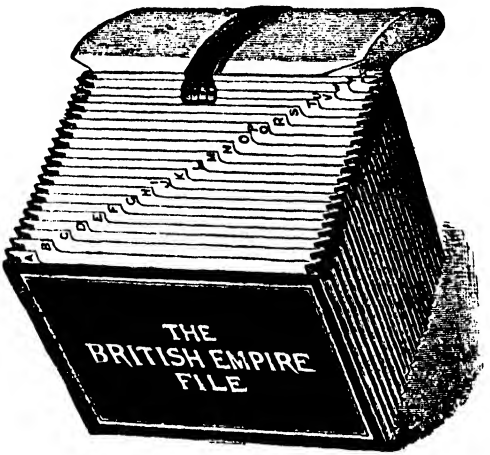
E. & O.E.

Thus, in the above example, the consecutive number of the invoice is 348, whilst the number of the previous invoice from the

National Office Equipment Co., Ltd., is 10, and the succeeding one is 762.

The chronological system of filing is particularly suitable for small concerns or for the filing of documents which do not occur in large quantities, as for instance, invoices, and those documents which form the basis of the books of first entry. The system is unsuitable for the filing of letters.

ALPHABETICAL FILING. Under this system the letters must be sorted first, and since it is exceedingly inconvenient to do

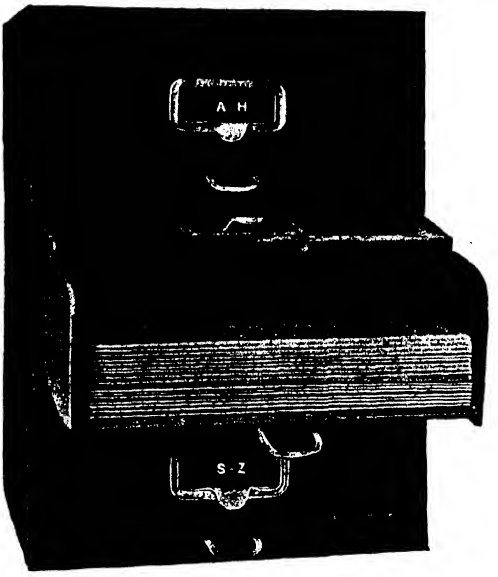


LETTER SORTING CASE

this on a table or desk, a letter sorting case is employed. This consists of an open box of a size suitable for quarto or foolscap sheets, fitted with a simple set of alphabetic guides. The letters are placed in the sorting case behind their appropriate guides, and thus all correspondence for a particular filing drawer is brought together ready for filing. The alphabetical arrangement of the correspondence in the sorting case may be extended *ad libitum* by the suitable selection of subdivisions on a vowel basis. Under this system the accumulated papers are ready, in a rough alphabetical classification, for filing whenever convenient, and the confusion attending the indiscriminate bundling of papers awaiting filing into a letter basket is avoided. Letters may be retained in the " sorter "

until it contains a sufficient number to warrant clearance, when the letters are placed on files.

When the correspondence is of a miscellaneous character, consisting of but one or two letters from each correspondent, a flat filing system is preferable. Where a relatively large amount of correspondence has to be dealt with, the vertical filing system is much the more convenient. In this system the letters are filed in an upright

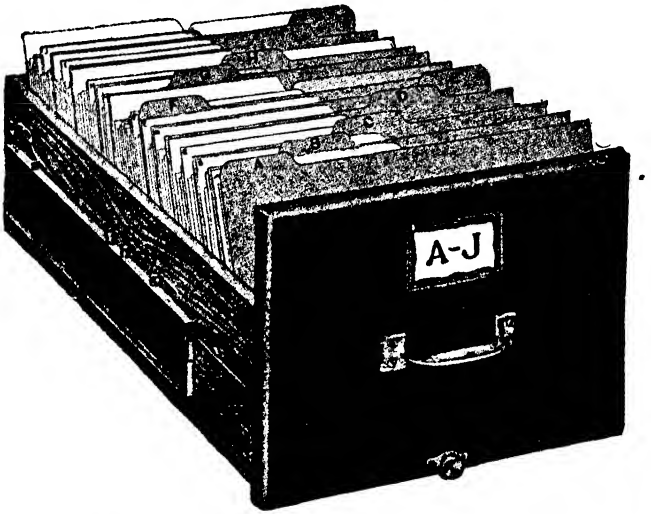


HORIZONTAL FILING CABINET

filing cabinet which is provided with drawers which will take either foolscap or quarto sheets. Stiff guide cards are provided for each letter, and in the compartments so formed a series of manilla folders are placed, each bearing the name of a correspondent. In addition, one folder marked " miscellaneous " is provided under each letter to contain casual letters from persons who are not habitual correspondents of the firm. In practice it will be found useful to make subdivisions of the commonly occurring letters with intercalatory guide cards, marked BA, BE, BI, and so on.

This method of filing is far superior to the chronological method,

for it is easy to find any letter or document if the name of the firm from which it emanates is known, while the necessity for keeping an index is eliminated. Its chief disadvantages is that when the correspondence is voluminous, the file soon becomes overcrowded, and where there may have originally been only from five to ten folders falling behind each alphabetical guide, there may now be twenty or thirty. The demand, say, for Robert Jones's folder now entails a search through many other folders behind the

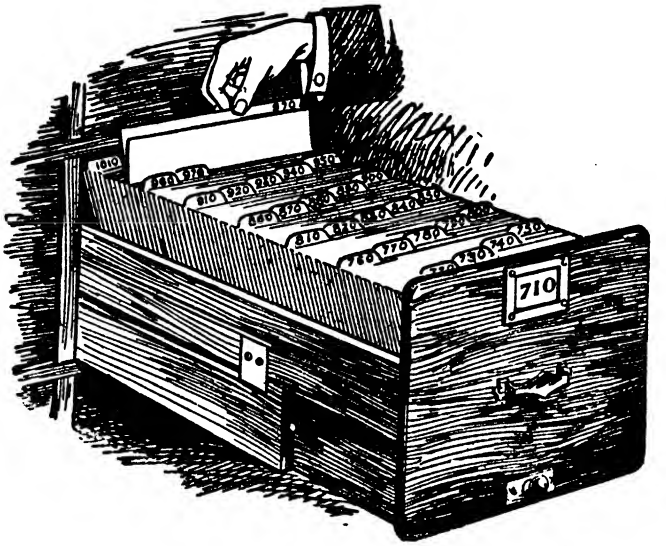


SINGLE DRAWER OF VERTICAL FILE ARRANGED ALPHABETICALLY

" J " guide, instead of the few which found a resting-place there before. Subdividing the alphabet certainly improves the position, but even then the filing clerk is faced with the problem of finding the folder relating to Robert Jones from amongst a number of others also bearing the name of Jones.

As an alternative to this system, we have the *numeric* method of filing. Here, a numbered folder is allocated to each correspondent, and this is filed away in consecutive numerical order, guide cards being inserted between every ten folders. Under this method there is no limit to the possible expansion. The chief drawbacks to this system lies in the fact that an index is necessary, no normal operator

being able to remember the numbers allocated to all the firms on the list, and frequent reference to such an index entails a considerable loss of time. Another modification of the alphabetical filing system is the alphabetical arrangement of correspondence according



POOLE. John & Co 970
18 Munster St
London E.C.
Smith T. Manager
Telegrams Marvel

NUMERIC METHOD OF FILING

to localities, known as *geographical* filing. This method is used chiefly in the filing of documents and correspondence which have reference to the sale, and especially to the visiting of customers by agents and travellers, for in that case it is convenient to have all the material about the customers of one locality kept together.

SUBJECT-FILING. This is the filing of documents or correspondence according to the particular subject-matter dealt with in the

transactions. Although this method is less customary than the chronological or the alphabetical method, in some manufacturing concerns it is employed with advantage. In public institutions and among lawyers it is a common method of filing.

Every matter which gives rise to correspondence receives a number which is inscribed on all documents referring to the matter in question and filed away accordingly. The business friends are also invited to refer to the same number in their replies. All the letters and copies of outgoing correspondence referring to the matter in question are kept together in the same case. Within one and the same case, the correspondence is arranged chronologically. This system of filing has the great advantage of facilitating reference, as all the material bearing on a certain transaction is to be found together. It is important that any particular file should be easily found, and for this purpose a register is kept showing the number inscribed on the documents and the nature of the subject-matter.

In each case the documents lie loose. In order to prevent documents getting lost or being withdrawn when the case is sent round for inspection to other departments, the practical device has been introduced of providing each filing case with a clamp, fastened by a machine, before it leaves the filing department. This clamp keeps the letters together without damaging either the case or its contents, and the clamp can be removed only by the aid of the machine. Finally, it is necessary in this system that copies should be made of all letters which refer to different matters and which, therefore, ought to be in different cases. It is customary, therefore, to ask the correspondents to deal with one matter only in each letter.

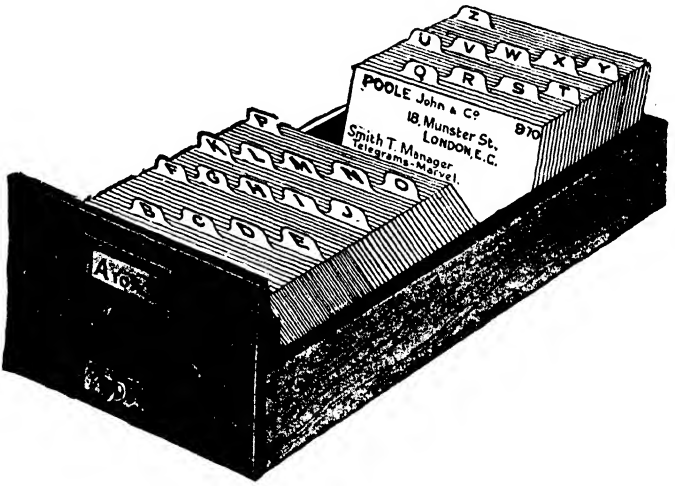
THE CARD INDEX SYSTEM. As a file for storing information which is continually being supplemented we have the so-called card index system. This is a convenient and methodical system of filing information of every kind by recording certain particulars on loose cards or leaves instead of in bound books. These cards or leaves are arranged in a cabinet, either alphabetically, chronologically, or according to subject, and by their position in the drawer they are "self-filing" so that the keeping of a register is superfluous. The cards are arranged alphabetically or according to locality or subject, and any card may be located by guide cards.

The card index system has the following advantages over bound books—

1. The extent of the card collection never assumes inordinate proportions because—

(*a*) The collection can at any time be split up into various portions by the separation of the cards.

(*b*) Matters dealt with can be withdrawn from the collection at any time by taking out the cards.



CARD INDEX, SINGLE DRAWER

2. New material can be inserted into the file at any moment by introducing new cards and the same remark applies to corrections.

3. No special index register is needed.

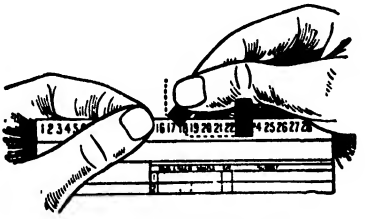
4. The best possible oversight over all material is kept by this system.

5. A change in the order of the cards and, therefore, of the information may be speedily effected, whereas in the bound books it cannot be effected at all.

6. The particulars inscribed on the cards may be arranged according to various points of view by the employment of " signals." These are small pieces of metal in different forms and colours fixed to the cards in the desired position.

7. The contents of a card index may be used by several persons concurrently.

The disadvantage of the card index system over the bound book lies in the possibility of losing some of the cards either through negligence or deliberately, a thing which, of course, makes control difficult or even impossible. The card index system is, therefore, on principle, unsuitable for those undertakings in which perfect order must prevail. To prevent the withdrawal of the cards, they are sometimes slipped through a rod or else the drawer of the cabinet is provided with a cross-bar in such a way that the cards can be moved freely without the possibility of their being withdrawn. The card index system is a valuable device which has



METHOD OF AFFIXING SIGNALS

found introduction into the offices of commercial and manufacturing undertakings where it serves to facilitate the systematic classification of all sorts of information, and to act as a register for filing.

The employment of the card index system is to be recommended in cases where information about incoming or outgoing materials, and manufactured articles, workmen, customers, travellers, etc., has to be arranged alphabetically or according to localities. In all these cases the card index is an advantageous substitute for the bound book since it is handy, compact, and adaptable. Where particulars have to be arranged chronologically, however, the bound book with its index is superior to the card index system. The bound book and the card index, however, can be employed concurrently where it is advisable to arrange certain particulars under more than one heading. They then mutually complement and check each other. Thus, in addition to the order book in which all incoming orders are entered chronologically, an index with cards

bearing the names of the customers and details of the order may be instituted. A card is made out for each customer, and these are arranged alphabetically in the drawer of the cabinet. By employing guides of different shapes, which can be moved along the upper edge of the card, the cards may be made to reveal facts of a diverse nature, for example, to show the date of the last order, the date of the last visit of the traveller, the date of the next payment due, or for reminders. The extension of the principle of the card index to the accounting system has led to the substitution of loose leaf books for the customary bound ones. Opinions differ, however, as to the admissibility of these books as legal evidence since there is always a risk of the loss of loose leaves.

TEST PAPER V

1. To what main branch of a manufacturing business does the correspondence department belong ? Why is the counting-house usually situated at the entrance to the factory ?
2. What two points of view have to be considered in dealing with the correspondence ?
3. What are the requisites of a properly organized correspondence department ?
4. Give the ruling of a Letters Received Book and enter therein three imaginary items.
5. Enumerate the chief arguments in favour of a centralized correspondence department.
6. What are the objects of a Filing Department ? Are you in favour of a centralized or a decentralized filing system ? Give reasons for your answer.
7. Write notes on chronological and alphabetical filing and state in what circumstances each is used.
8. What are the advantages of the card index system over bound books ?
9. Give two instances in which the employment of the card index system has proved beneficial.
10. The Correspondence Inwards Book shows that a letter was received on 3rd May from Brooks & Co., Ltd. It has since disappeared. Miss A, the correspondence clerk, says she delivered it to the Order Department (to which it is entered) and that department denies ever having received it. How could all this trouble be avoided, or at least the blame definitely fixed on one or the other ?

CHAPTER VI

The Buying Department

The purchases of the manufacturing undertaking consist of items of fixed capital, and those for conversion into goods, that is, the circulating capital. Among the items of fixed capital are those intended for permanent use in the undertaking, such as land and buildings, machinery, tools, etc., as well as the further purchases for the maintenance, extension, and replacement of these installations. The circulating capital consists of those items which serve, not for permanent use, but for consumption within a comparatively short time. This consumption takes place—

1. By actual use within the undertaking, as, for instance, fuel, oil for machinery, writing materials, etc.

2. By the conversion into articles for sale, as in the case of raw materials.

3. By sale without previous treatment, as, for instance, packing materials.

The purchases find expression in the prime cost of the products, that is, the purchase of articles for permanent use is shown in the amount written off for depreciation, whereas the bought and consumed values appear in the various categories of cost according to their nature.

In manufacturing undertakings, the prime cost of the products consists of three parts—

1. *Cost of Materials*, that is, the purchase price of the raw and auxiliary materials which form the substance of the products, or which co-operate in their production. The significance of buying is rooted in this portion of the prime cost, and the chief aim is to buy as cheaply as possible.

2. *Cost of Labour.* Apart from the actual rate of wages and the efficiency of the labour, these costs are also influenced by the buying. Bad material, generally speaking, entails higher manufacturing costs and leads to defective production. Hence, the importance of good buying.

3. *Expenses of Manufacture.* These include the various items of

expenditure of a manufacturing concern, such as the costs of power, depreciation, the greater part of the salaries and other costs of administration, rates and taxes, etc. Included in the expenses of administration are many items whose purchase falls to the buying department, as for instance, office materials. The costs of sale are not included under this heading. The packing materials, in so far as they cannot be passed on to the customer, would be included under the heading of selling costs.

FUNCTIONS OF THE BUYING DEPARTMENT. These various factors in buying, which influence the prime cost, show us that buying is just as important for the successful development of a business as is manufacture and sale. This remark holds good, especially in times of depression when the prime costs have already been reduced to a minimum. In these circumstances a profit can be obtained only by the skilful purchase of raw materials ; or, in speculative commodities such as rubber, copper, and cotton, by entering into long-period contracts with the suppliers. In recent years, buying has tended to become simplified by the establishment of *co-operative buying associations.*

The operations of buying consist not only in the judicious discrimination between incoming offers, but also in the following—

1. The ascertainment of the most suitable sources of supply, for example, whether from the actual manufacturer or from the middleman ; from home or foreign suppliers.

2. The establishment of the proper qualities (procuring of samples, analysis, determination of capacity of machinery, etc.).

3. The determination of the quality required, and in certain cases, the correct estimation of future demand so as to be able to make a long-term contract on better conditions.

4. The establishment of the conditions of delivery, freight, packing, penalties for non-delivery or late delivery, qualities, etc.

5. The keeping of proper records and statistics of the buying operations.

Nowadays, in nearly every manufacturing concern, there is a special buying department, which either constitutes an independent section or is an adjunct of the commercial office. At the head of the buying department of a manufacturing concern stands, as a rule, the buyer, who usually is an important official of the business, and

is assisted by the necessary executive staff which consists chiefly of correspondents. As a rule the buyer is subject to the commercial manager. This arises from the necessity to restrict his independence in the granting or orders, for the more important purchases require the sanction of the manager. It is, therefore, advisable to stipulate in his contract of employment the precise conditions under which he may pledge the firm.

The desire of the commercial side is to buy as cheaply as possible, but this has its natural limits in certain technical considerations, for on the quality of the raw material will depend the quality and, therefore, the saleability of the finished product. The selection of a suitable raw material is a matter of the greatest importance, in which the governing considerations are uniformity and ease of working in the manufacturing process. The first essential in the purchase of materials is to obtain the quality best suited for manufacturing, and in securing this quality, regularly and accurately, price is negligible within fairly wide limits. Hence, the buyer must find out, in consultation with the technical manager, how far he may go in this matter.

In some concerns, as in the case of companies, the managing director is compelled to obtain the permission of the board before sanctioning purchases. Such restrictions of the authority of the managing director are usually embodied in the Articles of Association. Thus, in the Articles of Association of X & Co., Ltd., the managing director requires the sanction of the board—

1. To the acquisition, sale, or mortgage of real estate.
2. To the erection of new buildings, or alterations in existing ones.
3. For the conclusion of contracts entailing obligations for a longer period than twelve months, etc.

QUALIFICATIONS OF THE BUYER. The following qualifications are necessary in a person who is to act as buyer—

1. He must be a trained commercial man who is closely acquainted with the sources of supply.
2. He must possess the necessary knowledge of commodities and of his particular branch of trade.
3. He must be a trustworthy person, and, modern legislation, with this end in view, is designed to prevent the bribery of employees.

By the Prevention of Corruption Act, 1906—

(*a*) An agent who corruptly accepts, obtains, or agrees to accept or attempts to obtain for himself or for some other person any gift or consideration for doing or not doing any act in relation to his principal's affairs, or

(*b*) Any person who is a party to such corrupt proceeding, is liable to be prosecuted, and, if convicted, to a sentence of two years' imprisonment with or without hard labour.

Every buyer must have these three qualifications, although his experience in technical and commercial matters may differ in degree according to the nature of the undertaking. The question whether, in a given case, the buyer should belong to the commercial or the technical staff depends upon whether the buying department is co-ordinated with the commercial or the technical management.

The question, which also presents itself in the administration of the stock can, in general, be answered only when we differentiate between two different categories of industry, namely—

1. Undertakings engaged in the manufacture of separate articles. Since the products differ, the consumption of material and also the purchases are irregular and diverse. A typical example of this kind is the construction of large machines. In such undertakings a varied technical knowledge is required for buying, and the buyer is therefore a technical man. In this case the buying department will be co-ordinated with the technical management.

2. Undertakings engaged in mass production with a steady output of a limited number of products, and the consequent steady consumption of certain raw materials and partly-finished articles which are bought regularly in the same qualities and quantities. Here, the buying department and the administration of materials generally belongs to the commercial section, and the buying is, therefore, entrusted to a commercial man.

The buying department may be set up as an independent organ. It is frequently connected with the commercial management because, apart from the executive activity of the buyer, the work consists chiefly of correspondence. Sometimes the buyer is also the head of the warehouse, a method to be recommended on account of the intimate connection between buying and stock-keeping.

REQUISITIONING SUPPLIES. When the buying department is expected to take advantage of the state of the market when effecting its purchases of raw materials, the need for renewal of supplies must be communicated to it in plenty of time before the entire stocks are exhausted. Furthermore, the systematic ordering of the necessary raw materials is of great importance for the maintenance of proper routine and for the punctual delivery of customers' orders.

The question arises as to which department is responsible for taking the initiative in communicating to the buying department the need of raw material. The answer to this query will differ according to whether it is a case of mass production or the manufacture of separate articles.

Since undertakings engaged in mass production have generally a regular consumption of certain raw and auxiliary materials, the notice to the buying department may proceed from the stock-keeper who can always keep himself informed of the requirements by consulting the stock books. If, as an exceptional case, something particular is wanted, the notice might be given by the department which requires this exceptional article. On the basis of this arrangement, the buying department receives a stores requisition. This may be of a two-fold nature—

1. Where a material which has been used before is ordered from the same supplier, the requisition to the buying department takes the form of a voucher which is filled in by the person requisitioning the goods, and bears the date, number, particulars of goods to be purchased, quantity, the last supplier, and the time of delivery. There is also a space provided for the buying department to record the order number and any other remarks. Sometimes the voucher that has been filled up in this way is returned to the requisitioner as an acknowledgment of the order. A specimen of such a requisition is shown below.

2. When the material required has not to be ordered from the former supplier, the department making the requisition has to justify its wish specifically on the requisition voucher, so that the reasons for the change of the supplier can be established and appreciated.

In undertakings with mass manufacture, the principle should be

PURCHASE REQUISITION

No. ..... *98* .....

Particulars of Materials Required	Stores Ref. No.	Present Stock	Quantity Required	Purpose for which Required	To be Filled in by Buying Dept.			
					Order No.	Approved by	Ordered from	Remarks
Frame Castings . .	*5468*	*500*	*2000*	*Stock*	*7632*	*N.B.*	*Brown, Ltd., Newcastle*	*Quoted 50s per cwt.*

Date ..... *20th February, 192*.... Storekeeper's Signature ..... *Richard Thomas* .....

recognized of regarding the buying department as the sole link between the suppliers and the various departments of the factory. The only person to interview the suppliers should be the buyer himself. The factory managers and stock-keeper should not be permitted to enter into direct relations with the supplier, and to give him orders over the head of the buying department. They should communicate their requirements to the buying department, for whose consideration they may submit suggestions in regard to quality, price, and source of supply.

In the case of undertakings engaged in the manufacture of different articles a great diversity of material will be required, mostly in small quantities and at short notice. Here, the centralization of buying in one single department no longer possesses the same advantages. In this case, the various manufacturing departments, especially the technical office, frequently enter into direct communication with the suppliers by soliciting quotations and giving orders. The idea is to simplify and accelerate the buying of those articles in which technical considerations rank equally in importance with price.

In large-scale undertakings, consisting of several factories and sales agencies, there is usually a central office for the conduct of the general affairs of the whole concern. Here, a large share of the purchases, especially the contracts for the delivery of coal and raw materials are effected, instead of by the various works. This system offers the advantage of economies when buying on a large scale from one authority and it tends to stimulate specialization in buying. The buying activities of these central offices sometimes extend even to the acquisition of tools, utensils, and office appliances.

When giving an order for the first time, it is customary to invite quotations from various suppliers, and for this purpose special forms are in use of a style similar to the specimen shown. Where the quotations received call for technical knowledge, as in the analysis of samples, and where the buying department is of a commercial character, the incoming quotations will be submitted to the technical section for their inspection. This submission of quotations would be accompanied by a list of the quotations received, and this list would be endorsed by the technical department with certain remarks justifying the selection of a particular supplier.

RECIPROCITY IN BUSINESS. The selection of the supplier from the quotations received may be influenced by considerations of finding a sale for the firm's own goods. In this case there must be co-operation between the buying and the sales departments, so that when orders are given the firm's own customers may get the preference. On the other hand, those suppliers to whom regular orders are given should be invited to become customers and place orders when possible.

To facilitate such mutual orders, there must be a connection between the buying and the selling organization, and this may be established—

1. By the sales department notifying the buying department of every important order from a firm which may become a possible supplier to the buying department. This may be done on a coloured card which is filed in the departmental record of sources of supply, and which is conspicuous by reason of its colour.

2. By the buying department giving to the sales department information of firms who have received important orders, and who are likely to become prospective customers.

3. By the preparation of statistical data connected with the most important purchases and sales for inclusion in the monthly reports which are issued in many large undertakings for the purpose of informing the management of the most important transactions in each department.

ISSUE AND RECEIPT OF ORDERS. Orders should be given only in writing, and any oral, telegraphic, or telephonic orders should receive immediate confirmation. For this purpose special forms are used, a typical form is shown on page 58.

Every order given is entered by the buying department into an order book, which is numbered in a manner corresponding to the order forms. For book-keeping purposes, the account chargeable with the materials is also entered. In addition to acting as a control of the orders given, the order book also brings to notice any delay in delivery ; there is, therefore, a column in the order book indicating the times of delivery. Lastly, the dates and numbers of the invoices are entered as they are received, as a sign that the order in question has been executed and that the examination of the goods can begin. In some undertakings it is customary, instead of entering

SPECIMEN INQUIRY FORM

INQUIRY

THE SOUTH WALES ENGINEERING CO., LTD.

EAST MOORS, CARDIFF

Telephone No.: 769 CARDIFF.
Telegrams: "ENGINEERING," CARDIFF.

20th February, 19....

Messrs. William Brown, Ltd.,
Newcastle

DEAR SIRS,

Please quote us, at your earliest convenience, your lowest price for the supply of the following goods.

Yours faithfully,

THE SOUTH WALES ENGINEERING CO., LTD.,

N.B.

2,000 Frame Castings to our pattern No. 5468, sent to you to-day.

Delivery. *To commence 2 weeks after the date of placing the order, and to be completed within 6 weeks of this date.*

The Company does not bind itself to accept the lowest, or any tender.

SPECIMEN QUOTATION FORM

QUOTATION

WILLIAM BROWN, LTD.

NEWCASTLE

Telephone No.: 322.
Telegrams: "BROWN, NEWCASTLE."

.....*21st February*, 19....

To.....*The South Wales Engineering Co., Ltd.*,.....
.....*East Moors, Cardiff*.....

DEAR SIRS,

We beg to thank you for your inquiry of the .....*20th*..... inst., and below have the pleasure of submitting our quotation.

2,000 Frame Castings to your Pattern No. 5468. 50s. per cwt.

Delivery to commence 2 weeks after the date of placing the order, and the work to be completed within 6 weeks.

Yours faithfully,
WILLIAM BROWN, LTD.
A.J.

Purchasers with whom we have not an account are asked to submit the usual trade references.

This quotation is subject to usual exceptions, of strikes, lock-outs, etc., and all other stoppages beyond the control of the Sellers.

ORDER No. 7632

THE SOUTH WALES ENGINEERING CO., LTD.

EAST MOORS, CARDIFF

Telephone No.: 769 CARDIFF.
Telegrams: "ENGINEERING, CARDIFF."

.....*22nd February*, 19.....

Messrs. William Brown, Ltd.,.....
.....*Newcastle*.....

PLEASE SUPPLY the undermentioned goods—

2,000 Frame Castings as Pattern No. 5468.

Delivery. *Commence in 2 weeks. Complete in 6 weeks.*

Quotation. *Dated 21/2/.... at 50s. per cwt.*

Deliver to. *East Moors, Cardiff.*

(Signed) .....*N. Branton*.....

No order will be recognized unless given on our official order forms.

The number of this order must be quoted on all invoices.

An advice note should be sent with each batch of goods.

up the number and date of the invoice, to cross out the order in the order book. This is to prevent the possibility of the same goods being charged twice.

When an order is executed, generally an invoice, intended for the buying department, is first received, and afterwards passed over to the book-keeping department. The examination of the goods to which the invoice refers can now begin and the entries can be made into the books. This is done by crediting the supplier and debiting the particular department which has received the goods. The period of this entry and its form vary—

1. There are undertakings in which the invoices received are entered on a list or kept on a file, and only after establishing the correctness of the goods and the invoice are they entered into the Purchase Book. The entries are made only after examination of the goods.

2. In other concerns in which claims seldom arise, the incoming invoices are entered into the Purchase Book without delay. The advantage of this is that the entry corresponds with that which has been made in the books of the supplier.

The goods are taken over by the receiving office or by the stock-room, and are entered up with their numbers, quantities, weights, description, and name of sender into the Goods Received Book. This and the Purchases Book are kept by two different departments, but the records refer to the same transactions, and thus form a valuable check. From a comparison of the two entries—

1. It can be seen at any moment whether a particular lot of goods which has been invoiced at a certain date by the supplier is probably on the way, but has not yet been delivered.

2. Vice versa it can be seen whether invoices for goods received are still missing. Both cases are of equal importance for stock-taking purposes, for the assets in the shape of goods and the liabilities in the shape of the debt to the supplier can go into the Balance Sheet only together, and never one without the other.

This mutual check has also the advantage of enabling one to detect any delay in the delivery of invoiced goods, or any invoicing in duplicate—matters of great importance in big concerns.

After these entries have been made, the execution of the order is submitted to a three-fold examination. In the first place, the

buying department compares the incoming invoice with the order, to check the correctness of the quantity, quality, and price. On receipt of the goods, the second check is made, that is, the goods are compared by the stock-keeper with the invoice or the delivery note to see that the quantity and quality are the same. For this purpose, in many businesses, the invoice of the supplier is handed to the stock-keeper who returns it to the office duly initialed. This method, however, has the disadvantage that the invoice is often delayed in the works for a considerable time, or is even lost altogether. For this reason, many manufacturers ask their suppliers

THE SOUTH WALES ENGINEERING CO., LTD.

Purchase Order No.	*135*	Registered Invoice Number	*637*	Invoice Number	*4560 3271*

Correct Quantities received . . *A.S.I.*
Prices Checked . . . *G.B.*
Entered in Contract Ledger . . *J.J.*
Calculations Checked . . *R.B.*

Allocation Certified by . . *D.M.*
Approved for Payment . { *J.B.S.* / *J.W.J.* / *D.B.R.*

Nominal Account to be Debited			Quantity or Weight				Stores Code		AMOUNT		
Account	Code		T.	C.	qr.	lb.	Group	No.			
	Led.	Folio									
N. 30 . . .	*A*	*16*	*3*	*10*	*2*	*0*	*&*	*3*	*45*	*17*	*6*
N. 145 . . .	*B*	*101*	*5*	*0*	*0*	*0*	*Y*	*17*	*61*	*0*	*0*
N. 150 . . .	*C*	*3*	*4*	*9*	*2*	*0*	*Z*	*1*	*53*	*10*	*3*
							TOTAL	£	*160*	*7*	*9*

to send all invoices in duplicate and to invoice every kind of article separately. Finally, the invoice is checked to ensure its arithmetical accuracy. To make sure that every incoming invoice has been checked in the manner described, in many factories a special slip is provided which is attached to the invoice, and takes a form similar to that shown on page 60.

It is advisable to keep all the incoming invoices separate from the other correspondence. Alphabetical filing is usually employed, and the contents of the file are ultimately removed to transfer cases from which the invoices can easily be extracted. In this way these important documents are preserved from loss, and are readily available for comparison with entries in the Purchase Book and the Goods Received Book.

TEST PAPER VI

1. Of what three parts does the prime cost of the products of a manufacturing undertaking consist ?
2. " Buying is just as important for the successful development of a business as is manufacture and sale." Give evidence in support or in refutation of this contention.
3. What are the chief functions of a buying department ? Why is the buyer usually subject to control of the commercial manager ?
4. What are the qualifications required by a person who is to act as buyer ?
5. What procedure is usually followed when requisitioning materials through the buying department ?
6. Make out a purchase requisition on the lines of the example shown on page 53 and enter therein two items.
7. What considerations influence the buyer in his choice of his sources of supply ?
8. Explain the procedure adopted in the issue of orders for supplies, and trace the execution of such an order up to the receipt of the incoming invoice.

CHAPTER VII

Stock-keeping

In factory undertakings, a distinction is drawn between the following kinds of stock—

1. The stock of raw materials used in manufacture. Under this heading may also be included the stock of office materials, stationery, etc.

2. The stock of tools.

3. The stock of partly finished goods, that is, those articles which have undergone a certain process of manufacture and which are issued according to order. Such a stock occurs chiefly in those concerns which are engaged in the manufacture of different articles. Here, a subdivision is usually made between partly finished and finished articles. Corresponding with this stock of partly finished goods in concerns engaged in mass manufacture, there is a stock of intermediate products. In this stock is also included those articles which are not intended for sale, but for further use within the undertaking itself.

4. The stock of goods ready for sale in which are included the articles made to order and the finished goods produced for stock.

MANUFACTURING MATERIALS. In every manufacturing undertaking the most important stock-rooms are, therefore, those for the raw materials and those for the finished goods; since the stock-room for the partly manufactured articles or for the intermediate products is usually regarded as an adjunct to one or other of the main classes of stock.

The materials consumed in a factory are divided into raw materials which enter into the products and thus form a portion of them, and into auxiliary materials which assist the process of manufacture and include such items as heating, fuel, cleaning and packing materials; materials used for the maintenance of the machinery or for small repairs, or spare parts, and tools which are subject to rapid deterioration. The raw materials and the auxiliary materials are described collectively as " materials."

Raw and auxiliary materials are employed in every industrial undertaking with the exception of those devoted to extraction and those which bear an industrial character, such as mines and quarries. These do not consume any raw materials, but they use up, in the course of time, the substance of their invested capital in the shape of the land. From the standpoint of business, every undertaking represents an independent unit. Expressions like " raw materials," " intermediate products," and " finished articles," are, therefore, terms of business economy, and in accounting they are always used with reference to a particular undertaking, and not in a general sense. From this it follows that in business economics a material becomes a raw material at the moment and in the state in which it comes within the sphere of the particular undertaking for the purpose of treatment. An intermediate product is any material which is no longer the raw material of the concern, but which has not passed through all the stages of manufacture. A finished product is one which has reached its saleable state as far as the undertaking is concerned. From this point of view, then, raw materials can only be acquired, and no raw material can be produced within the firm itself. Materials of the firm's own production, if they are to undergo further treatment in the same establishment, are intermediate products, and if that is not the case, they are finished products. If, therefore, a product which was produced in the first stage of an undertaking from a raw material is subjected to further treatment in stage two of the same undertaking, it is considered an *intermediate product*, and if the product of undertaking A is subjected to further treatment in undertaking B, it is not a raw material for undertaking A, but a *finished product*. This is the case, for instance, in those concerns which devote themselves to the extraction of coal, iron ore, clay, and stones, which, in ordinary language, are considered raw materials, whereas in business they are regarded as finished, or intermediate products according to whether they are used in the same undertaking or not.

The business man's conception of the terms—raw materials, intermediate products, and finished products—does not coincide with the accepted usage which, arguing from the standpoint of the consumer, generally considers yarn a manufactured article, rags as waste, and tin as a partly finished article, whereas the two former

FACTORY MATERIALS

RAW MATERIALS

Basic materials which, after undergoing treatment in the factory, emerge as an essential part of the finished product.

IRON ORE

is the raw material of the Smelting Works.

WOOD OR WOOD PULP

is the raw material of the Paper Works.

COAL

is the raw material of the Gasworks.

AUXILIARY MATERIALS

Those materials which assist the process of manufacture but are not embodied in the finished product.

MATERIALS USED IN THE WORKS

Cleaning materials.
Lubricating materials.
Nails and screws, etc.

FUEL

Wood.
Coal and coke.
Benzene, etc.

PACKING MATERIALS

Paper and Paper bags.
Cases and casks.
String and wire, etc.

ILLUMINATING MATERIALS

Coal gas and acetylene.
Paraffin oil.
Electric lighting materials, etc.

MATERIALS USED FOR MAINTENANCE

Those materials used in the maintenance and repair of plant, machinery, and other manufacturing equipment.

SPARE PARTS

TOOLS USED FOR REPAIRS

BUILDING MATERIALS

are considered raw materials in weaving mills and paper works, whilst tin is a finished product of the rolling mills. Since these terms are always used from the standpoint of the particular undertaking, it may be seen that one and the same product may sometimes be a raw material, and sometimes an intermediate or even a finished product. For the smelting works which operate at the side of the ore, that is, where the ore is extracted from a particular mine and is further treated in the company's own smelting works, the ore is regarded as an intermediate product, whilst the coke which they have to get from outside is a raw material. On the other hand, an iron mine without smelting works would regard the ore as a finished product. For the smelting works which also owns its own coal mine but has to buy the iron ore from outside, the ore is a raw material, whilst the coal and coke are intermediate products. For the maltster, the malt is a finished product, but for the brewer it is a raw material. If the malt factory is an adjunct of the brewery, the malt becomes an intermediate product.

The kind of raw materials consumed depends, of course, upon the nature of the undertaking, but the auxiliary materials employed are practically the same in all manufacturing concerns. They may be divided into the following groups—

1. *Materials used in the works*, including cleaning materials, such as cotton waste, soap, brushes, brooms, lubricating materials, files, screws, nails, etc.

2. *Fuel*, such as wood, coal, coke, benzene, gas, and paraffin.

3. *Illuminating materials*, such as paraffin oil, gas, spirits, acetylene, and articles used in connection with electric light.

4. *Packing materials*, such as paper, paper bags, sacks, boxes, casks, bottles, string, and wire.

5. *Building materials*, such as timber, stone, lime, cement, sand, tiles, glass, asphalt, and tar.

In newly erected factories a central position is generally selected for the warehousing of raw materials; otherwise, when the works begin to extend there is a tendency for branch stock-rooms to be established which increase the difficulties of control and the expenses of administration.

The expenses of stock administration include—

1. The salaries and wages of the staff.

2. The expenses incurred in the treatment of the materials, and the packing of the products sold.

3. Lighting, heating, and cleaning.

4. Maintenance and repairs of the buildings and equipment.

5. Rent of the stock-room or a percentage of the depreciation of the buildings.

6. Insurance of the building and of the stocks.

DUTIES OF THE STOCK-KEEPER. The duties of the stock-keeper of the raw materials are purely internal, for he gains access to the outside world only through the buying department. He initiates the purchase of the necessary raw and auxiliary materials by notifying the buying department when he requires them. From this results the fact that, in the organization of the stock-room, the chief point is to keep a good check on all incoming and outgoing materials, so as to avoid any pilfering or waste. At the head of the stock-room we find the stock-keeper, and although this person is not usually entrusted with the purchase of materials but obtains them through the buying department, the post should be entrusted only to a reliable employee who is both methodical and honest. It must not be forgotten that in most factories the administration of the stock involves a greater financial responsibility than that of cash, and the duties of the stock-keeper are to some extent analogous to those of the cashier.

In the administration of the materials care must be exercised in the following matters—

1. Although, on principle, it is not the duty of the stock-keeper to see that purchases are effected wisely, yet the stock-keeper may influence the buying by drawing attention to the quality and durability of the raw and auxiliary materials. For this reason the stock-room and buying department are frequently linked up with each other in point of organization.

2. Likewise it is not the duty of the stock-keeper to exercise economy in the consumption of the materials, but this devolves on the particular departments using them, nevertheless he enjoys a certain independence. He may exercise supervision over the consumption of the materials requisitioned by the various departments of the work. From the standpoint of organization it is, therefore, essential for the stock-room administration

to be subordinate, not to the technical management, but to the commercial management and, in preference, to the buying department.

3. The stock-keeper should aim at the economic administration of the materials by first using up old materials before requisitioning new supplies. Stocks of obsolete materials, instead of being consumed at the first suitable opportunity, are often carried forward from one stock-taking to another. Such stocks represent dead capital which entails expenses of administration and loss of interest. However, since the best administration of materials cannot prevent the accumulation of some such stocks, a list of these should be made out at the time of the annual stock-taking and laid before the management. They should be consumed at the first opportunity, or disposed of as useless materials.

4. Finally, the economic administration of the stock calls for the avoidance of surplus stocks.

The maintenance of adequate stocks of materials, and especially the keeping up of minimum stocks, is easier in concerns engaged in mass production, where the consumption of materials is steadier both in quality and in quantity, than it is in undertakings producing different articles. In the latter case, according to the products ordered or manufactured, the most diverse materials are used, the nature, quality, and quantity of which are chiefly determined by the extent of the incoming orders. In such concerns, to avoid the minimum stocks being impinged upon, special arrangements have to be made. Immediately an order is received, the stock-keeper should proceed with the preparation of a list of materials necessary for its execution; the materials can thus be procured whilst the necessary plans are being drawn up or other preliminary work is being attended to. In view of the large sums invested in materials by most manufacturing undertakings, a check on the adequacy of the stocks is absolutely essential. The suitability of the stocks is checked on the same lines as the balance of cash in hand. This is effected on the principle that it is uneconomic to use more cash than is absolutely necessary for the attainment of a certain end, and that, on the other hand, the balance should be of such a size that the requirements of raw materials may at any time be covered within a reasonable period.

The tendency of the stock-keeper, in general, is to accumulate too much stock. Such an accumulation has various disadvantages—

1. The working capital invested in these stocks is dead capital, and fails to produce any revenue.

2. The expenses of the stock-room are increased, that is, the storing and administration of this dead capital involves expense.

3. The risk of loss in quality and quantity is enhanced through the excessive duration of storing.

The examination of the suitability of the stock is undertaken by the stock-keeper, who lays down a minimum and a maximum stock for the principal materials in the light of the prevailing circumstances. The policy of the stock-keeping department must be to adhere to these figures which must be marked on the stock cards, and in this way it is possible to control the maintenance of suitable stocks from the stock records.

STOCK RECORDS. The stock-keeper, like the cashier, must also keep accounts of the incoming and outgoing materials. These accounts are kept in the stock book, the form of which varies greatly in different concerns. It may consist of a single stock book or of special stock books; it may be a bound book or a loose-leaf ledger, or it may be based on the card index system. The function of the stock book is three-fold—

1. To show the stocks of the various materials at any time without resorting to an inventory.

2. To check the consumption of materials and thus to avoid waste and fraud.

3. To ascertain the materials consumed by the various departments for the purpose of costing.

To attain this three-fold aim, the stock-keeper must obtain a receipt from the receiver of outgoing stock. Thus, the issue of materials from the stock-room may take place in two different ways—

1. In those concerns engaged in the manufacture of a number of different articles, a detailed list of the raw and auxiliary materials required for an order is drawn up in connection with the detailed works instruction. These working instructions for the production of a manufactured article also serve as the requisition for the materials from the stock-room.

2. In other concerns, the materials are handed out by the stock-keeper on the basis of material requisition vouchers which are made out by the foreman and must bear his signature. The foreman fills up the voucher and gives it to a workman who fetches the material from the stock-room. Upon receiving the materials, the workman hands the receipted requisition voucher to the stock-keeper who makes the entries into the stock book. These vouchers have to be filed away by the stock-keeper in their proper order since they are of the same importance to him as cash receipts are to the cashier. The following is an example of such a requisition voucher—

Req. No. 103.

SOUTH WALES ENGINEERING CO., LTD.

Job No. *A./1.*

EAST MOORS, CARDIFF

ORDER FOR MATERIAL, &c.

Date.....*1st January,*.....19....

PLEASE SUPPLY the following Materials—

.....	*Scrap Steel*	*2 tons*.....
.....	*Turnings*.....	*2 tons*.....
.....	*Lime*.....	*10 cwt*.....
.....	*Ferro Silicon*.....	*5 cwt*.....
.....	*A1*.....	*3 lb*.....
.....		
.....		

Required for.....*Foundry*.....

Signed.....*J. Robinson*.....

Workmen who have to receive materials are usually prohibited from entering the stock-room, the goods being handed to them in the receiving room. In large factories certain hours are allocated to each department for the drawing of materials from the stock-room,

the advantage of such an arrangement being that each department is compelled to draw its material in one lot, and thus the labour of the workmen is economized. At the same time, the work of the stock-keeper is also simplified, for the work is spread over the whole day and less staff is, therefore, required.

Sometimes the workmen receive more material from the stock-room than they are able to consume, either on account of the fact that there are no appliances in the stock-room for dividing up the material, or because the quantity necessary cannot be determined precisely in advance. In such cases, the surplus material must be returned to the stock-room together with a return voucher, which may take the following form—

MATERIALS RETURNED TO STORES

.....*Foundry (Cupola)*.....Dept.

.....*8th January*, 19....

Credit Job No.	Store Requisition No.	Description	Bin No.	Quantity Returned	Remarks
				T. C. Q.	
A/1	*103*	*Scrap Steel* .	*1*	*1 2*	*Surplus to requirements*
		Turnings .	*2*	*1 –*	
			Bay No.		
		Lime . .	*3*	*1 1*	

Foreman's Signature.....*J. Robinson*.....

Received by.....*S. Brown*.....

The above form should be printed in red, and is handed to the stock-keeper who can then adjust his records by reference to it.

In some factories, important waste materials are accumulated

in the course of manufacture, and, since these are not for sale, they are collected by the stock-keeper. Such waste is delivered to the stock-room in the same manner as surplus material, that is, on the basis of waste material vouchers which are made out by the foremen, entered into the Stock Book by the store-keeper, and brought to the notice of the accounts department. By-products, which will be further used in the same undertaking and which are not sold, are treated in much the same way as these waste materials.

THE STOCK BOOK. The record of the receipt and consumption of materials is made in the Stock Books which are kept on lines analogous to the Cash Book but with this difference : the Materials Stock Book contains a record only of the quantities, whilst the values are only shown in the financial accounts. The quantities shown in the Stock Book supplement the values shown in the financial accounts. On principle, the Stock Books should contain particulars of the incoming and outgoing quantities, but in some cases it is also made to contain prices and values. A specimen form for a Stock Book is shown on page 73. In the Material Stock Book, every kind of raw and auxiliary material is shown under a separate account. The entry of incoming materials is made from the invoice of the supplier, the waste material vouchers, and the returned material vouchers, whilst the record of outgoing materials is made from the requisition vouchers.

The quantities marked on the requisition vouchers are entered daily into the Stock Books. The vouchers are then sent to the costing department to have the prices entered on them. To simplify the work of entering the amount of raw and auxiliary materials consumed in the financial accounts, the amounts consumed are recorded only periodically.

The costing department may be advised in three different ways of the consumption of material and its employment—

1. By an inspection of the requisition and return vouchers which, after they have been entered into the Stock Book, are sent to the costing department. Here, the prices are inserted on the vouchers, so that the value of the materials consumed may be entered in the books. Finally, the costing department uses the information contained on these vouchers in the ascertainment of prime cost.

2. From the Stock Book in which is marked against all outgoing materials, the account or the requisition number.

3. On the basis of an abstract of the quantities of materials consumed during a certain period which is supplied by the stock-keeper. The preparation of this statement may be facilitated by the stock-keeper if, in addition to entering the quantities of materials consumed on the outgoing side of the Stock Book, he also keeps a special book showing the allocation of the material. That is to say, after the requisition vouchers are entered into the Stock Book, the amounts issued are also recorded in this Distribution Book. Thus, the consumption of material is arranged from two different standpoints—

(*a*) In the Stock Book according to the class of material. This classification is especially important for the accounts department because it treats the stock of materials as portions of wealth.

(*b*) In the Distribution Book according to the use of the material consumed, that is, according to the particular works department, or the particular products for which the material was required. This classification is an indispensable requisite for the keeping of cost accounts, since the dominating factor in the total costs is the material consumed in the works.

In this respect every department in the works has an account in the Stock Book. If, however, the factory is engaged in producing special articles, the entries in the Stock Book are made according to the individual order numbers and this leads to great bulkiness of the book. The Distribution Book is generally arranged on the tabular system.

In some factories, abstracts of the entries into the Stock Book are made daily, and this Statement of Material Consumed is sent to the managers of the various works departments for their comments. This arrangement has the advantage of keeping each departmental manager informed from day to day of the material consumed in his department, and indirectly, the stock-keeper is compelled to keep his books posted up to date.

The bound Stock Book is sometimes replaced by Stock Cards which are made out separately for every kind of raw and auxiliary material, and which are arranged alphabetically according to the class of goods named at the head of the cards. The advantage of

Specimen Stock Book which Shows the Balance of Stock at Any Time

Description ..... *Best Cast Tool Steel, Square*

Size ..... *¾ in.* Max. Stock ..... *10 tons* Min. Stock ..... *6 tons*

Purchased from ..... *John Miller & Co., Ltd., London*

Bin. No. *20*

RECEIVED							ISSUED								BALANCE				
Date	Invoice No.	Received by	Quantity				Date	Req. No.	To Whom Issued	Issued by	Quantity				Date	Quantity			
			T.	C.	Q.	lb.					T.	C.	Q.	lb.		T.	C.	Q.	lb.
Balance brought forward			*4*	*10*	*2*	*0*	*Jan. 2*	*15*	*J. Robinson*	*S. Brown* .			*2*	*8*	*Jan. 2*	*9*	*9*	*3*	*20*
							3	*19*	*D. Jones* .	*S. Brown* .		*1*	*1*	*6*	*3*	*9*	*8*	*2*	*14*
Jan 1	*4*	*S. Brown* .	*5*	*0*	*0*	*0*	*5*	*25*	*J. Robinson*	*S. Brown* .			*3*	*14*	*5*	*9*	*7*	*3*	*0*
							10	*45*	*D. Jones* .	*S. Brown* .		*1*	*3*	*14*	*10*	*9*	*5*	*3*	*14*
							12	*50*	*J. Robinson*	*S. Brown* .			*1*	*14*	*12*	*9*	*5*	*2*	*0*
							14	*53*	*D. Jones* .	*S. Brown* .			*2*	*12*	*14*	*9*	*4*	*3*	*16*
							16	*57*	*J. Robinson*	*S. Brown* .		*1*	*0*	*0*	*16*	*9*	*3*	*3*	*16*
							17	*60*	*J. Robinson*	*S. Brown* .			*2*	*3*	*17*	*9*	*3*	*1*	*13*
							20	*62*	*D. Jones* .	*S. Brown* .			*1*	*13*	*20*	*9*	*3*	*0*	*0*
							22	*64*	*J. Robinson*	*S. Brown* .		*1*	*1*	*0*	*22*	*9*	*1*	*3*	*0*
							26	*66*	*D. Jones* .	*S. Brown* .			*1*	*16*	*26*	*9*	*1*	*1*	*12*
		Total .	*9*	*10*	*2*	*0*				Total .		*9*	*0*	*16*	C/F	*9*	*1*	*1*	*12*

the card index is less obvious in a business using a narrow range of materials with a constantly changing stock, and for each of which a separate account is kept. For the control of the stock-room, the Stock Book is likewise more reliable than the Stock Cards. The latter are more suitable for those concerns which turn out different articles involving a large number of diverse and frequently changing materials. The chief function of the Stock Book is to show the stock of the various raw and auxiliary materials at any given time, and also to facilitate the control of the stock-room administration. The control of the incoming materials is effected by the book-keeping department on the basis of the invoices of suppliers which are entered into the Purchases Book. The outgoing materials are controlled by the periodical comparison of the credit columns of the Stock Book with the receipted requisition vouchers. The most reliable check on the stock-room administration, however, is afforded by an inventory which ascertains whether the stock shown in the Stock Book is actually in existence. Small discrepancies in the stocks are, of course, inevitable. After the inventory, the accounts of the various materials in the Stock Book are closed, after any possible omissions of incoming or outgoing materials have been entered.

TOOL STORES AND RECORDS. With the stock of materials is also connected the stock of tools in which, especially in engineering works, a large capital is frequently invested. These tools, which are the property of the undertaking, are, so to speak, lent to the workmen for the execution of certain jobs. Stock Books must also be kept for the tools as well as for all other appliances used in the works, and from the books the quantities existing at any time can be ascertained after adding or removing all those items which, during the year, have been either added or discarded on account of wear and tear. The book is the Tool Stock Book, and from it the value of the stock of tools can be arrived at by the insertion of the purchase price and the annual depreciation.

The tools may be divided into two groups—

1. Tools in everyday use, mostly of small value, which are lent to the worker until they become defective or until he leaves the employment of the factory; for example, hammers, pincers, files, screwdrivers, gimlets, etc.

2. Special tools of greater value which are lent to the workman only for the duration of his particular job and for which he requires them.

TOOL LIST

Employee's No.....*30*.....

To STORE-KEEPER,

PLEASE ISSUE to.....*J. Smith*.....
the following tools which are to be returned to the store prior to his leaving our employment.

.....*J. Robinson*.....Foreman.

Stock No.	Quantity	Size	Description
T/1	*1*	*12 in.*	*Files, flat hand*
T/2	*1*	*12 in.*	*Files, half round*
T/3	*1*	*1¼ lb.*	*Hammers, hand*
T/4	*1*	*5½ in.*	*Pliers, side cutting*

The tools mentioned above have been received by me, on loan.

(Signed) .....*J. Smith*.....
Issued by.....*S. Brown*.....

.....*2nd January*,.....19....

The return and proper use of these tools must be carefully checked. Each worker when starting his employment in the factory will be handed a list along with his tools on which is printed a request for their return on the termination of his employment, otherwise the value of the missing tools will be deducted from his wages. A duplicate of this list is receipted by the workman and handed to the stock-keeper, who makes his entries into the Tool Stock Book from this voucher. It is advisable to date the list so as to establish, in the exchange of any spoilt tool, whether the workman has taken proper care of the tool. A specimen of such a voucher is given above. The exchange of any defective tool is entered on the list by the store-keeper.

TEST PAPER VII

1. Draw up a classification of the various kinds of stock employed in a manufacturing concern.
2. Write notes on raw materials, auxiliary materials, intermediate products, and finished articles.
3. Copy the diagram showing the classification of factory materials on page 64 and explain its meaning.
4. Into what main categories may the auxiliary materials of a manufacturing concern be divided ?
5. What are the chief items of expense connected with the administration of stock in a manufacturing business ?
6. Enumerate the duties of the stock-keeper in a manufacturing business. What are the chief points which he must keep in mind in the administration of the stock ?
7. Enumerate the chief disadvantages connected with the accumulation of surplus stocks.
8. State the purposes of a Stock Book. Give the ruling of such a book and enter therein three specimen items.
9. What method is usually adopted by the stock-keeper in the issue of materials from the stock-room ?
10. Trace the relationship existing between the stock-keeper and the Costing Department.
11. What purpose is served by the keeping of a Tool Stock Book ?

CHAPTER VIII

The Wages Department

In every manufacturing undertaking there is a wages department whose principal functions are—

1. The establishment of the number of the workers and the nature of their employment.

2. The ascertainment of the number of hours which each employee has worked.

3. The fixing of the rate of wages agreed upon, especially the piece rates.

4. The calculation of the actual wages of each individual worker, including the various deductions for insurance, repayment of advances, the rent of workmen's cottages, etc., and the net wages payable.

5. The payment of these wages by the cashier on the basis of wages vouchers, and the preparation of a statement of wages not paid.

6. The recording of the amount of wages paid and their distribution over the various departments of the business for the purpose of ascertaining the costs. In this way, the wages department enters into close relationship with all branches of the factory administration, thus resulting in a great diversity of co-ordination between the wages department and other parts of the organization.

The wages department may be set up as a central wages office, or it may be decentralized. The central wages office, that is, a homogeneous wages department which extends its activity to the whole of the workers employed in the business, and which keeps a complete record of all money spent on wages. This is the method most frequently met with in industry. The institution of a central wages department is especially to be recommended where the employment of the workers is of a similar nature, and when no extraordinary conditions exist which render the calculation of the wages particularly difficult. The number of workers, however, does not influence the constitution of the department, and both centralized and decentralized wages departments are to be found

in large-scale undertakings. In general, and apart from particular circumstances, a central wages office is preferable to a decentralized one owing to the lower cost and the greater facilities of control.

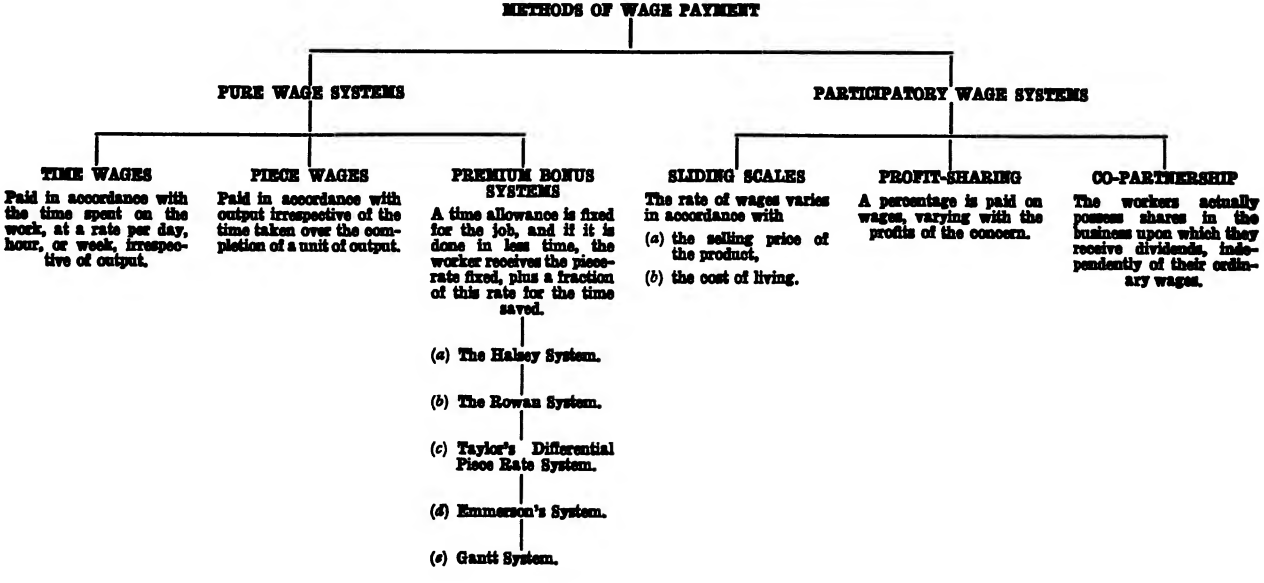
THE CENTRAL WAGES DEPARTMENT. When the central wages department exists as an independent unit, it is generally co-ordinated in the commercial section of the business, but when it is dependent upon another section of the administration, it is connected with either the cashier's or the costing department. There are various reasons for uniting the cashier's and wages departments. In the first place, the cashier of a factory occupies a position of trust which usually carries with it a high salary, whilst his activity is often not very extensive. His principal work is the periodical payment of the wages; hence, the cashier, in order to extend his field of authority is, at the same time, given the position of head of the wages department, which, in a manufacturing business, explains the frequent occurrence of the merging of the cashier's and the wages departments. Experience shows, however, that such a co-ordination gives rise to the risk of fraud in the payment of the wages by the making of false entries in the Cash Book, and the issue of fictitious wages vouchers. At any rate, the control of the cash is rendered more difficult.

The reasons which favour the combination of the wages with the costing department, though of a different kind, are sometimes decisive. Here also, we find certain points of contact between the activities of the two departments. The wages calculated by the wages department subsequently form one of the most important elements of prime cost which has to be established by the costing department, and, therefore, this department has a keen interest in adapting to its needs the preliminary work of the wages department. Moreover, in those undertakings in which piece rates are paid, the officials of the wages department who prepare the piece-rate vouchers, and the officials of the costing department who make their special calculations on the basis of these piece-rate wages, must possess some knowledge of the technical working. In such factories, the combination of the wages with the costing department is suggested, and this occurs especially in those concerns engaged in the manufacture of individual articles where the costing is of special importance.

In factories with decentralized wages departments there is no special wages office, nor even smaller wages offices in the various departments of the factory. This arrangement is found chiefly in those factories with a technical office which takes in hand the control of the whole process of manufacture, and which gives to the various workshops the necessary drawings, instructions, etc. In other words, it is found chiefly in those concerns which devote themselves to the production of individual articles. In larger concerns there is generally a works office, consisting of the works engineer, his assistants, foremen, and a few controlling officials. These constitute the executive of the technical office and the connecting link between the technical office and the workers who execute their instructions. Of course, the staff of the works office, who are in close touch with the workmen, are entrusted with the calculation of the wages. In this case, the accounts or costing department which has to collect these reports from the works officials, is likewise the wages office.

WAGES SYSTEMS. There are four main types of wage systems used in manufacturing concerns, viz., time, piece, commission and bonus, profit-sharing and co-partnership schemes.

TIME WAGES. This system may be satisfactory in a small undertaking where a good foreman can keep in close touch with all that goes on. There is no incentive, however, for a man to do his best unless his time rate is raised periodically as he proves his worth. Time wages often have a piece-work basis fixed in the interest of the employer, that is, minimum output per hour of employee. This system of wage payment is preferred where the employee tends valuable machinery or where scrupulous perfection of workmanship is required or where it is impossible to maintain continuity of output. Time is wasted when workers are paid on time rates, because the average man is not inclined to over-exert himself. He, therefore, waits to the end of the job for the foreman to set him another, spreads out work to make it last until closing time in order to save the trouble of starting another towards the end of the day, and spreads out work because he fears unemployment. But under such conditions where time wages are preferred, as stated above, these disadvantages are outweighed by the advantages.


METHODS OF WAGE PAYMENT
PURE WAGE SYSTEMS
PARTICIPATORY WAGE SYSTEMS
TIME WAGES
Paid in accordance with the time spent on the work, at a rate per day, hour, or week, irrespective of output.
PIECE WAGES
Paid in accordance with output irrespective of the time taken over the completion of a unit of output.
PREMIUM BONUS SYSTEMS
A time allowance is fixed for the job, and if it is done in less time, the worker receives the piece-rate fixed, plus a fraction of this rate for the time saved.
(a) The Halsey System.
(b) The Rowan System.
(c) Taylor's Differential Piece Rate System.
(d) Emmerson's System.
(e) Gantt System.
SLIDING SCALES
The rate of wages varies in accordance with
(a) the selling price of the product,
(b) the cost of living.
PROFIT-SHARING
A percentage is paid on wages, varying with the profits of the concern.
CO-PARTNERSHIP
The workers actually possess shares in the business upon which they receive dividends, independently of their ordinary wages.

PIECE RATES. Payment by the piece appears to be the ideal system from the worker's point of view, for the harder he works the greater is his remuneration. The employer gains nothing in respect of labour cost because the rate is usually fixed in accordance with the time rates, that is, the amount paid on time rates for getting a piece of work done is taken as the basis for the piece rate. The employer saves, however, on other charges such as capital charges, lighting, heating, power, etc. Labour in general is not favourable to piece rates for the following reasons, viz.—

When the piece rate is based on previous performance tests paid for at a day rate, the difference in output is often astounding as a man earns in a day as much at piece rates as seven or eight times his previous day rate. Competing factories find that they can engage labour at piece-work rates lower than these exorbitant charges, and it is, therefore, necessary to reduce the first-named piece rates. The workers, however, consider this unfair. Until a proper basis is found—and it is almost impossible to find this basis by relating it to the usual time rates of pay—adjustment from time to time becomes necessary until the workers feel that under piece rates they earn no more than on time rates but have to work much harder. Piece rates and their adjustment are the cause of much friction.

A combination of piece and time rates is used in the *contract system*. The foremen in charge are given a fixed sum for the work they do. They hire and direct the men, usually paying them on a day basis. The foreman's income, therefore, depends on how large an output per day he can get out of the men. Slave-driving may result, and the system is successful only with low-grade labour.

PREMIUM SYSTEMS. (*a*) *The Halsey System*. The worker is given a certain rate per hour. A piece of work is given to him which it is estimated should be performed in so many hours. If he does it in less time a saving on the estimated wages will be secured. Some percentage, say 33⅓, will be added to the time wages earned by the men. In any case the worker secures his time rate of wages. When he increases his wage by reducing the time taken on the work, he also effects a saving to the employer in wages cost per unit of production. Under this system the basis rate need not be altered—

this alteration being the bone of contention with the straight piece-work rates.

(*b*) *The Rowan System.* This is a British modification of the Halsey System. The weakness of the latter is the enormous pay which workers receive. Take an extreme case. Time rates 2s. per hour—work performed in 10 hours instead of 100 hours = 180s. If he received 33⅓ of this saving he would be paid at 8s. per hour, but under the Rowan System the workers' time rate is increased by such percentage as the time saved bears to the time allowed. To take the above illustration, the time saved equals 90 per cent of time allowed. The actual wage premium = 2s. plus 90 per cent = 3s. 9½d. per hour. It is obvious that under the Rowan System a man could never double his time rate. The advantage of the system is that, as no extravagant earnings can be made under it, the necessity for cutting the basis rate is improbable. Its disadvantage is that as great efforts are made to reduce the time on a job, the remuneration per hour does not increase proportionately.

(*c*) *Taylor's Differential Piece Rate System.* Dr. F. W. Taylor, who has possibly made the greatest contribution to scientific management, in criticizing the Halsey System, pointed out that while it had the great virtue of promoting incentive to greater output, it did not punish a worker who refused to do his best. Taylor therefore proposed the following scheme: Every job should be divided into its elementary operations, and an attendant observes with a stop-watch how many minutes and seconds it takes a given worker to perform each operation. These times are then added together and given the standard time for the job. In connection with the timing, everything possible is done by the management to eliminate waste of time at the machine. For instance, an electric bell would be handed to the worker to signify to the tool-room that he wanted a tool re-ground. A spare ground tool would also always be placed near to put in the machine for use while waiting for the freshly-ground tool. Rates are fixed as follows: If the time rate is 2s. per hour and the usual rate per output one piece per hour, it might be found after timing a man at his maximum that three pieces could be turned out in the same time. If his output were at the maximum he would be rewarded by a higher rate than the time rate, say, at a piece rate of 1s. per piece turned out. If he

turned out more than three pieces per hour he would still receive 1s. per piece. If he did not attain the maximum which it had been shown was possible in his case he would drop to a rate even lower than the time rate of 2s. an hour as a punishment for not doing his best. This punishment clause has aroused much hostility in the mind of the British worker.

(*d*) *Emmerson's System.* A modification of the above system was put forward by Emmerson, which provided that the length of the time required for a job is to be determined in the same scientific manner as by Taylor and a day rate of wages is fixed. If the workman attains to two-thirds of the maximum he has to receive a bonus on the day rate, which gradually increases until his output becomes 100 per cent of what is estimated to be his maximum. For every piece he does above the maximum he has to receive an amount equal to what he would earn per piece when working at the maximum.

(*e*) *Gantt Scheme, or Bonus Scheme.* The Gantt Scheme, or Bonus Scheme, provides that the time required for each job is to be carefully determined. If the worker performs the task in this time he gets paid at the daily wage rate and a stipulated bonus. If he fails to do the work in the allotted time he gets his daily wage only. As soon as he finishes his job he must be given another to which also a definite time and bonus are allowed. Unit time study is satisfactory for determining a standard time when the work is of more or less unvarying character, that is, in a continuous type of industry.

After all, the test of any system is its results, and the manager should judge by how much material is wasted, the output, and the number of defects reported by customers, whether his system is successful or not. The problem is rendered difficult by the fact that an organization, not merely a collection of individuals, is under consideration; that is, a team whose success may depend on how its members can pull together. If the individualistic side is emphasized, the importance of effective team work is thrown into the background. One of the direct results of paying piece rates is irregularity of output. The quantity of work done in such departments is apt to be determined not by the requirements of the works as a whole, but by the financial requirement of the worker.

PROFIT-SHARING AND CO-PARTNERSHIP. These aim at giving the worker an interest in the organization of the firm. According to the report on profit-sharing and labour co-partnership in the United Kingdom of 1920, profit-sharing is a scheme whereby the workers receive in partial remuneration of their labour and in addition to their wages a share fixed beforehand in the profits realized by the undertaking. The report suggests that at least 75 per cent of the adult employees of the firm should be included in this scheme if it is to work satisfactorily. The object of this system of wage payment is that the worker should participate in the profits after all expenses in connection with ordinary remuneration have been met. The share in the profits may be paid in any of three forms: (1) The worker may receive cash payments at specified dates. (2) The bonus may be deferred for a specified term and then paid out under certain conditions, that is, not leaving the firm within a given period. (3) Payment may take the form of stock in the company with or without restrictions as to transfer or sale. The first and third methods are most usual. Employers institute profit-sharing schemes for different reasons. One class of employer shows that philanthropy is the motive; another aims at luring the worker from the trade unions; a third by making the workers financially interested in the profits of the business, since a higher output through the workers tends to reduce waste, preserve plant, etc.

The two important drawbacks to profit-sharing are the small bonus which the worker obtains, and the risk that the workers, after having given of their best, find that bad management may cancel or reduce the profit bonus.

Recognizing that participation in profits without any power in the direction of the business is an inherent drawback to profit-sharing, co-partnership schemes have been introduced to give the employee a certain measure of representation on the Board of Management. Despite the results obtained by a few firms such as Lever Brothers, J. T. and J. Taylor, The South Metropolitan Gas Company, co-partnership schemes have not, on the whole, been more successful than ordinary profit-sharing schemes.

TIME KEEPING. Every factory has to keep an exact record of the time worked by its employees in order to be able to calculate

the wages of the time workers, and also to compel them to observe punctuality in the beginning and finishing of the working time. In the case of the piece rate workers, an exact record of the duration of their working time is also indispensable ; for, in addition to his piece rate, there is also arranged with the piece rate man a time rate which corresponds with his average capacity and the customary time rate for his class of work. If the job on which the piece worker is engaged exceeds the wages paid, that is, if the piece rate job is not finished on pay day, it is usual in some firms to pay a time rate for the uncompleted work. On the other hand, if the time wage exceeds the piece rate, the difference is known as loss on the contract. For example, a workman accepts on the 22nd May a piece rate job for 28s. As the pay day is on the 24th May, the work is not finished on that date. If the workman has worked altogether 26 hours from the 22nd to the 24th May, and if his time rate is 5d. per hour, at the end of the week he receives an advance in respect of this job of (26 × 5)d. or 10s. 10d. If in the following week he works another 28 hours on his contract job, he then receives at the end of the second week, first of all a second advance of (28 × 5)d. or 11s. 8d., and also the contract profit of (28s. — (10s. 10d. + 11s. 8d.)), or 5s. 6d.

The bad observance of the fixed hours of labour means a loss to the factory, whether the workers are engaged on time wages or on piece rates. In the latter case, however, this loss does not find expression in the wages paid to the worker, but indirectly in an increase of the overhead charges, for the shorter working time of the piece rate workers affects detrimentally the intensive employment of the fixed capital, and the reduced production signifies a greater proportional burden upon the products, thus entailing an increase in the prime cost. In the calculation of the time worked, the amount of overtime is of great importance, that is, those hours which have been worked in excess of the normal working day and which have to be remunerated at a higher rate. From the standpoint of business organization, overtime is an index of the unforeseen increase of work, or of the uncompleted work resulting from bad organization, lack of space, machinery, or of labour. Since overtime has to be paid at a higher rate and thus entails higher expense, it is important that statistics should be kept of such

overtime, and it is in the interest of the business to prevent its excessive growth. This can be attained by the extension of the works, and the employment of additional labour and capital.

In the case of the insufficient employment of the labour power, the business experiences periods of idleness. These also have to be eliminated as much as possible, since they tend to increase the prime cost through a proportionate increase in the overhead charges.

SYSTEMS OF TIME KEEPING. There are various systems for controlling the time worked by the men. Workers' time books may be kept, into which a foreman or a works official enters daily the names and working times of each man. A duplicate of these entries is sent to the wages department. The books, therefore, represent time sheets which have to be filled up twice daily in every workshop by the foreman, that is, in the morning and afternoon immediately after the commencement of the working time and then sent to the wages department.

A variation of this system, which frequently acts as a check on some other method of time recording, consists in the taking of a personal statement from the workmen of their working time by handing to each man at the beginning of the wages period a wages account, which the worker has to fill up daily and which has to be handed to the wages department at the end of the week, duly initialed by the foreman. Such wages accounts are indispensable in the case of piece-workers since they show the manner in which they have been employed. These wages accounts, which are filled up by the workers themselves, are known as *piece rate vouchers*.

The timekeeper may prepare a daily report on the persons entering and leaving the factory. In this report he records the names of the workers who arrive late or who leave the factory during working hours. The control of the workshop by means of time books, or time sheets, such as the example given on page 87, combined with the timekeeper's control, are rough methods of establishing the number of hours worked. The former is a decentralized, and the latter a centralized method, which can come under consideration only in smaller concerns because it is necessary for the timekeeper to know all the workers. Both systems are based on the reliability of the person in charge, that is, the porter or the

WORKMAN'S DAILY TIME SHEET

DAY TURN. Date.....*2nd January*,.....19....

Name.....*John Jones*..... *No*.....

Class of Work.....*Fitting Shop*.....

Jobs	Time Worked H.	Time Worked M.	Distribution
Fitting Steam Tubes to Injectors .	*2*	*45*	*A/40*
Fitting Discharge Tubes to Injectors .	*3*	*5*	*A/45*
Fitting Lift Tubes to Injectors . .	*1*	*40*	*A/47*
Fitting End Caps to Injectors . .	–	*30*	*A/61*
Total . . .	*8*	–	

.....*J. Robinson*.....Foreman

TIME-WORKER'S DAILY TIME SHEET, GIVING PARTICULARS OF ALL JOBS UNDERTAKEN DURING THE DAY AND THE TIME SPENT ON EACH

foreman. This disadvantage can be counteracted by the simultaneous adoption of both methods, that is, the employment of the timekeeper's records as a check on the works officials.

Under another system, the presence of the worker is established by the hanging up or the taking down of a disc at the entrance to the factory. Upon his engagement each worker receives a numbered control disc, and figures in all the books of the wages department under this number. The control disc hangs on a board at the entrance to the factory. When the worker enters the factory he takes down the disc from the board, and when he leaves the factory he hangs it up again, or vice versa. During busy seasons, especially at the conclusion of the working time, it is arranged for the workers to throw their discs into a box hung up at the door. It is then the business of the porter to hang them up on the board during the absence of the workers, and upon their return to work, the workmen have only to take them down again. As soon as the signal to start work is given the board is taken away, and the discs have to be specially applied for, so that the absence or late arrival of a workman is disclosed.

The disc system lends itself to a two-fold check, that is, at the entrance to the factory and again on entrance to the workshops. In this case, the worker who takes off his disc at the entrance to the factory hangs it up again on a similar board in the workshop. If he leaves the factory, he takes down the disc from the board in the workshop and hangs it up again on the board at the door. Thus, the hours worked may be established in two different places.

The disadvantage of the disc system is that fraud may be practised by a workman who hangs up or takes away two discs at the same time so as to cover the absence of another worker. Mistakes in the discs and errors in recording the time are also possible. These disadvantages may be removed by the employment of the discs for the mechanical record of the time of arrival and departure. This is effected by means of a clock. The worker who has taken down his disc upon entering or leaving throws it into a slot in the clock and, according to the time when it is thrown in, it falls into a certain receptacle in the clock. Even in this method, errors may be made subsequently when copying down the times.

A purely mechanical method of time keeping is attained by the

installation of automatic time clocks which register the exact time of the arrival and departure of each worker. Under this system, all disputes, mistakes, and the bribing of officials are avoided since each worker has to register his own time. There are several types of mechanical time clocks, for example, the key, the lever, and the card apparatus. In the case of the key apparatus, the worker turns a key bearing his number, and this registers his number and time of arrival on a strip of paper in the clock. Key clocks are the oldest automatic time-keepers.

In the lever type of recording clock there are numbers all round the dial. The workman swings a pointer round the face of the clock until it is above his particular number, and then presses a lever which records both the time and his number on a sheet inside the clock. In the case of the key apparatus, the entries on the time sheet are in the order in which the workers have registered, whereas in the lever apparatus they are in numerical sequence.

AUTOMATIC TIME RECORDING CLOCK

The card is inserted in a slot and a lever pressed, the time being mechanically stamped on the card

Under the card system, each worker receives a card bearing his number, at the beginning of the week. These cards are kept in a rack, and when the worker arrives at the factory, he takes his card from the rack and drops it into a slot in front of the clock. By pressing a lever, the hour and minute of his arrival are stamped upon the card. This stamping appears in one of the four columns of the time card according to whether the worker arrives in the morning, leaves for dinner, returns from dinner, and, finally, leaves in the evening. After he has stamped his card he places it in a second rack. The cards remaining in the first rack, or those which are missing from the second indicate the workers who have not arrived at a given time. When the workman leaves the factory, he takes the card out of the second rack, stamps it in the same manner

as before, and puts it into the first rack. At the end of the week, the cards are collected by the wages department, which makes up the wages account on the back of the card so that the workman can check his wages with the number of hours worked on the front of the card.

The great advantage of this system is to be found in the fact that the times recorded for each worker are not on the same strip, but all the records of any one worker are on a single card which may serve as the wages account.

DISTRIBUTION OF TIME. Parallel with the ascertainment of the working hours is that of the worker's efficiency. In this respect, two classes of workers may be distinguished—

1. Those who receive time wages and are engaged in tending machines. In this case it is sufficient for the purpose of establishing the results of their labour to record, along with the number of hours worked, the particular section or department in which they are employed. This method is generally adopted in firms which manufacture on a large scale.

2. In the case of workers with changing employment, such as is usual in firms producing individual articles, the record of the working hours must be supplemented by a detailed record of the tasks they have performed during those hours.

There are three main systems for ascertaining how the worker distributes his time. In the first system, each worker enters chronologically on a sheet or in a book all those jobs which he has done or commenced in the course of the day together with the number of hours occupied thereon. This system is specially suitable for time-workers, and may be linked up with the control of the working hours as shown by the mechanical recording clock by making the entries of the worker with regard to the employment of his time upon the back of the clock card, thus rendering almost impossible any fraud or false statement. Upon his entry into the factory, the worker takes his card, stamps it in the clock, and retains it so long as he remains in the workshop where it may, perhaps, be hung up near his place of work ; the foreman or supervisor is thus able to check it easily.

Under the second method, each workman receives for every single job which he has been instructed to execute, a voucher. In

contrast to the previous system, therefore, there is not a voucher for each worker, but for each piece of work. This system is especially suitable for piece-workers. The worker who takes over a job on piece rates is given a piece rate voucher which also represents a piece rate contract, and which forms the basis for the calculation of the wages. The custom has developed in many factories of concluding the piece rate contract in writing. This contract is represented by the contract voucher which is drawn up by the wages department in duplicate, one copy being handed to the worker on which he marks daily the time devoted to the contract, and, perhaps, also the materials used. The second copy, which is signed by the worker, remains in the wages office. Both vouchers contain the conditions of the contract, especially the nature of the task and the rate of wages. On completion, the work is examined and checked with the voucher, which is handed to the wages department where it serves as the basis for the calculation and payment of the wages.

The contract vouchers are preferably hung up on a small board in the vicinity of the working place of the particular workman so that he can easily make his entries upon it. The contract vouchers, which are filled up consecutively, also facilitate the control by the works officials on their periodical rounds of inspection. It happens not infrequently that workmen are engaged alternately on contract work and time-work, in which case there is a risk of entering hours spent on time-work as hours spent on piece-work, and vice versa.

As soon as the contract work is finished and delivered, the workman hands the contract voucher, duly initialed by the foreman, to the wages office. These contract vouchers now serve as the basis for—

1. The payment of the contract rate of wages.
2. The costing of the article.

The contract vouchers, from which the length of time worked and the wages received can be seen, show the results of the various contracts for the business and for the worker, and the necessity for an increase or a reduction in the wage rates can be seen at a glance. Thus, the continual examination and comparison of the contract vouchers in the wages and costing departments result ultimately in the fixing of piece rates which are to the satisfaction

of both contracting parties. The manufacturer must be careful, however, that he does not acquire the reputation of a " sweater " among the workers, and he must reduce the piece rate only where it is absolutely necessary.

The system of circulating vouchers for the purpose of establishing the working results consists in the issue of a voucher for each manufacturing process where several workmen participate in its execution. This voucher contains particulars of the various tasks to be undertaken, and accompanies the article at every stage of manufacture. In some cases, departmental vouchers are also issued for the separate tasks, and may be kept distinct from the main voucher. When a workman has finished his task, he enters the number of hours on the circulating voucher in the section intended for him. This he tears off and hands the article, together with the circulating voucher, to the next worker. This system of circulating vouchers may be considered a suitable supplementation of the two preceding methods. Since, however, for technical reasons, the customary course of manufacture may not be adhered to, the system of circulating vouchers manifests certain disadvantages; for this reason it is less widespread than the other two systems.

THE WAGES BOOK. The ascertainment of the wages of the individual workmen is effected in the Wages Book, a specimen of which is shown on page 93. In these records a distinction is drawn between the following groups—

1. *The Gross Wages.* Under this heading we include not only the amount which is paid to the worker in wages, but his total emoluments in time and piece rate wages, bonuses, compensation for tools, etc., without allowing for any deductions. The effective wages may be subdivided into—

(*a*) PRODUCTIVE WAGES, that is, those directly applied to the production of a certain commodity, and

(*b*) UNPRODUCTIVE WAGES, which are only indirectly connected with the manufacture, and for that reason cannot be debited to any particular manufacturing process. Like the general expenses, these appear more in the nature of expenditure in the interest of the whole undertaking, as for instance, the wages of the watchman, the messengers, the workshop clerks, the wages spent on heating, lighting, and cleaning, the wages of the stock-room staff, etc.

ANALYTICAL WAGES BOOK

No.	Name	No of Hours	Rate of Pay	Gross Wages			Deductions				Net Wages			Employer's Contributions				Productive Wages			Unproductive Wages		
							Health Insurance		Unemp't Insurance					Health Insurance		Unemp't Insurance							
				£	s.	d.	s.	d.	s.	d.	£	s.	d.	s.	d.	s.	d.	£	s.	d.	£	s.	d.
3	J. Jones	48	1/7	3	16	0		9		7	3	14	8		9		8	3	16	0			
6	M. Smith	48	1/7	3	16	0		9		7	3	14	8		9		8	3	16	0			
9	D. Brown	48	1/7	3	16	0		9		7	3	14	8		9		8	3	16	0			
20	B. Veal	48	1/5	3	8	0		9		7	3	6	8		9		8	3	8	0			
25	D. Huntley	48	1/5	3	8	0		9		7	3	6	8		9		8	3	8	0			
30	E. Davies	48	1/5	3	8	0		9		7	3	6	8		9		8	3	8	0			
31	R. Burns	48	1/5	3	8	0		9		7	3	6	8		9		8	3	8	0			
33	G. Scott	48	1/5	3	8	0		9		7	3	6	8		9		8	3	8	0			
34	F. Lewis	48	1/3	3	0	0		9		7	2	18	8		9		8				3	0	0
35	O. James	48	1/3	3	0	0		9		7	2	18	8		9		8				3	0	0
36	H. David	48	1/3	3	0	0		9		7	2	18	8		9		8				3	0	0

The difference between productive and unproductive wages is not a rigid one in the sense that the wages for a certain kind of work are not always included in the same category. The basis of the classification is found in the possibility of direct or indirect inclusion of the wages in the individual product; as this inclusion depends on varying circumstances, such as the organization of the works departments, the terms are only relative.

2. *The Net Wages Due.*

3. *The Actual Wages Paid Out.* After entry into the Wages Book, the wages department next makes out the wages vouchers, which are handed to the workmen, if possible, on the day before pay day so that they have an opportunity of checking them and of presenting any claims before they draw their money. The wages voucher may be perforated, and the workman, upon receiving his wages, tears off the coupon, signs it, and gives it to the pay clerk as a receipt. Where the wages are made up on the time cards, the signature of the worker on the card may serve as a receipt. Actual payment is effected by handing the workman a pence envelope containing the amount of his wages. This envelope should be printed on the face something as follows—

TO BE COUNTED IMMEDIATELY
ON RECEIPT

No.....97.....

£3 : 16 : 8

The following is a specimen wages voucher—

PAY CHECK

No.....*97*..... Turns Worked *6* + *5* per cent = *4* *9* *2*

Advances						
Rent	*6*	*0*				
House Coal	*5*	*0*	*Less*			
Doctor		*1*	Deductions		*12*	*6*
Health Insurance		*9*				
Unemployment do.		*7*				
Infirmary or other Subscriptions		*1*				
Total			Cash Paid	*3*	*16*	*8*

TEST PAPER VIII

1. What are the principal functions of a Wages Department ?
2. Describe the place occupied by a Central Wages Department in the organization of a manufacturing concern.
3. In what circumstances do you think it admissible to decentralize the Wages Department ?
4. Draw the diagram on page 80 illustrating the methods of wage payment and explain its meaning.
5. Contrast time and piece rates and state in what circumstances each is to be preferred as a system of wage payment.
6. Describe any system of wage payment in which the worker's remuneration varies with the output.
7. What are the chief advantages and disadvantages of profit sharing ?
8. Enumerate the chief methods of time-keeping and give a detailed description of one of the methods you mention.
9. Draw up a *pro forma* Wages Book such as would be used in a large manufacturing concern and enter six specimen items therein.

CHAPTER IX

Costing Department

In a manufacturing undertaking the function of the accounts is not only to record the sale of goods but they also follow the movement of values as between the various processes within the undertaking—at least, they do that in a well-organized business, and they ought to do it, to a certain extent, even in small undertakings. As all the important operations in a factory involve changes in value, whether they refer to the purchase of raw materials, their manufacture, or sale, the accounts should always enable us to trace these movements. In small concerns the book-keeping may be relatively simple, and the business transactions and the changes in values will be recorded in a very few accounts. With the increase in the size of the undertaking there will be a progressive subdivision of the various accounts. Thus, in a small business the books will record the business transactions with the suppliers in the Creditors' Ledger, those with the customers in the Debtors' Ledger; the receipt or payment of cash in the Cash Book. Moreover, such internal operations will be recorded as the purchase of buildings, machinery, and equipment, as well as their depreciation. The materials consumed will be shown in a Materials Account, the wages in a Wages Account, and all other expenditure in an Expenses Account. In addition to these it is also advisable to keep certain statistics.

In larger undertakings some or all of the above accounts are further subdivided, and this remark applies in particular to the expenses, for upon these items depend in a large measure the reliability of the estimating and costing.

THE COSTING DEPARTMENT. A particularly important part of the book-keeping of a manufacturing concern is conducted by what is known as the costing department. In this department an account is kept of all the changes in values which take place within the business. The cost accounts show the relation between revenue and expenditure, not only in regard to the whole establishment but also in reference to the various departments and processes, or even

in regard to the individual piece of work or order. The ascertainment of the costs is of the greatest importance for the successful conduct of an undertaking, especially in times of keen competition, when every undertaking must strive to out-rival its competitors, not only in the quality of its goods but also, if possible, by selling at a lower price. The cost accounts give an analytical view of the records shown in a condensed form in the financial accounts, and therefore serve as—

1. A record of results for periodical statistics and the preparation of interim Profit and Loss Accounts.
2. A guide for future estimates and in quoting prices.
3. A stimulus to economical processes.
4. A help in increasing production.
5. A means for controlling expenses.

ALLOCATION OF COSTS. Although a classification of the costs of production yield a valuable insight into the life of a manufacturing concern, the final aim of costing is the distribution of the costs over the unit of production—a matter which presents great difficulties in the various branches of business. It is the simplest where only one kind of commodity is produced, but these cases are rare. As a rule, a manufacturing undertaking carries out tasks of the most diverse nature, and the costs may accordingly be separated into—

1. Direct expenses, which have to be distributed over the various commodities or processes; and
2. Indirect expenses where such a direct distribution is impossible.

Direct expenses consist of the *prime cost*, that is, the cost of labour plus the cost of raw materials, with all charges thereon, such as carriage inwards, freight, etc., and *works oncost*, that is, those direct expenses of production which are incurred in the works, such as factory rent, fuel, repairs to machinery, and wages of storekeepers.

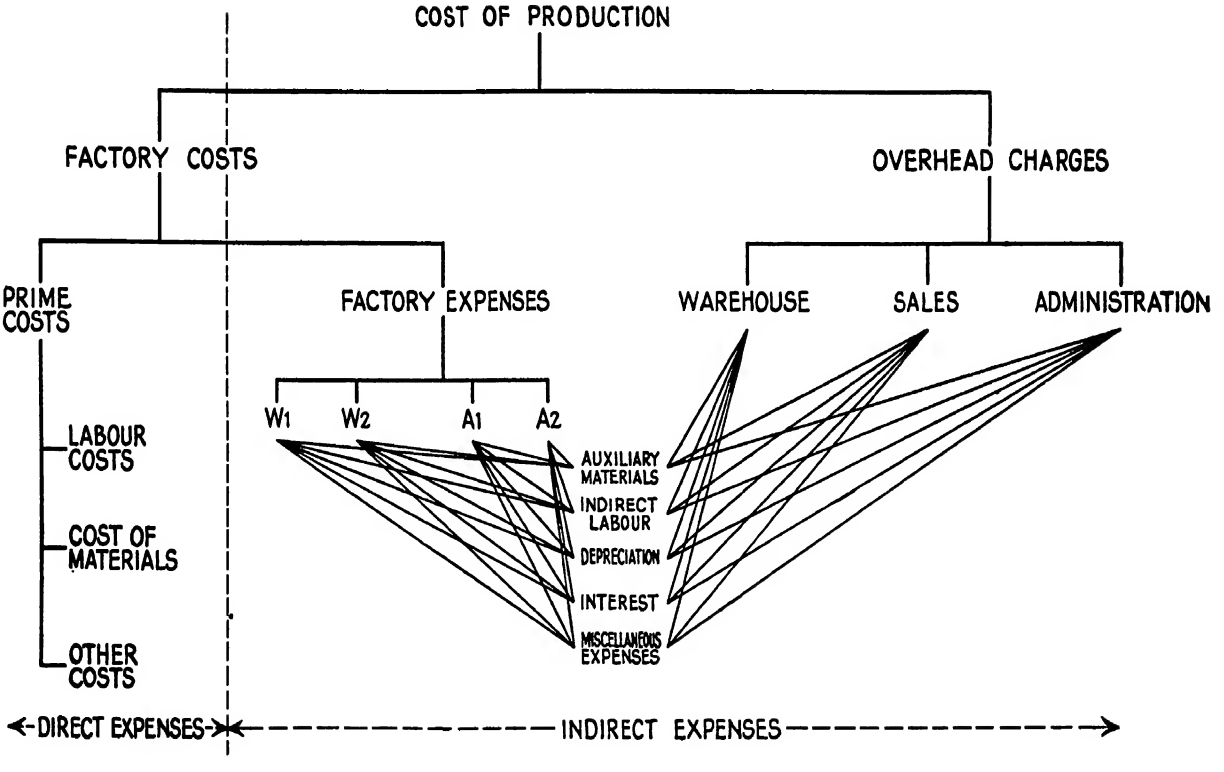
Indirect expenses are sometimes known as *overhead charges*. These costs cannot be charged directly to the unit of production. In manufacturing undertakings there are a great many such expenses, for example, expenses of administration, advertising expenses, the wages of the porter, and the salary of the traveller. Of course, it is not immediately apparent whether the various

expenses belong to the direct or the indirect class. It is the aim of costing to eliminate the inexactness caused by the indirect expenses by converting as many of them as possible into direct ones. This is attained by a far-reaching sectional organization of the undertaking, the guiding idea of which is the allocation of the indirect expenses to definite units. In an undertaking which produces a variety of products, and has a sales organization of its own, there will be at least four principal divisions in which expenses may be incurred. These are shown in the diagram.

We have to keep apart at least the indirect expenses of the undertaking (auxiliary materials, auxiliary wages of the transport workers) of the warehouse (cleaning, stock-keeper's wages), of the selling organization and of the Administration. These departments are not co-ordinated but subordinated—a fact which, of course, cannot be seen from the diagram. It is obvious that the administration (the chief book-keeping and the secretary's office) is necessary in the interests both of production and of sale, and therefore these expenses must be distributed over the three principal departments before any further distribution can be effected. The basis upon which the expenses are apportioned is the degree in which the individual articles or processes avail themselves of the services of these departments.

This general distribution of overhead charges, however, is not sufficient. The working costs must be allocated to the different workshops (W1, W2, for the so-called productive workshops; A1, A2, for the so-called auxiliary sections, such as the lift service in the departmental store), and, furthermore, a subdivision right down to the workshop groups and working places, the stock-keeping expenses of the various departments and the distribution of the selling expenses over the various departments and branches and the expenses of administration.

The prime costs form a part only of the *Cost of Production*. They embrace all the direct expenses of production and a share of the general expenses of administration; together with the overhead charges, they represent the *Total Cost* of production. When the total cost has been ascertained, it only remains to add the percentage of profit required, in order to arrive at the *Selling Price*.


COST OF PRODUCTION
FACTORY COSTS
OVERHEAD CHARGES
PRIME COSTS
FACTORY EXPENSES
WAREHOUSE
SALES
ADMINISTRATION
W1
W2
A1
A2
LABOUR COSTS
COST OF MATERIALS
OTHER COSTS
AUXILIARY MATERIALS
INDIRECT LABOUR
DEPRECIATION
INTEREST
MISCELLANEOUS EXPENSES
DIRECT EXPENSES
INDIRECT EXPENSES

PROCEDURE IN COSTING. Every order received should be entered in the *Works Order Book* opposite a reference number, and this number should be quoted on the instructions issued to the works. A ruling for the Order Book is shown on the next page.

Let us take, as an example, the business of an engineer. The instructions for each order are handed to the foreman of the department concerned, who then issues them to the men under his supervision. Each man is given a time sheet from which he enters particulars of all the time which he spends during the day. A specimen of such a time sheet is here given.

TIME SHEET

ORDER NO. *A* S

M/c No. *A 56* Man's No. *76*

Part No. *100* Size ½ in × *6 in.*

Material *½ in. Round Iron*

Quantity *3 cwt.*

Description *Bolt ends 6 in.*

Time Allowed *6* Hours Time Taken *4·43* Hours

Number Accepted *1,000* Price *9s. per thousand*

Remarks Signature *J.R.*

Slight modifications may be necessary for the different departments, and the sheets for each department may be printed on different coloured paper so that they may be easily recognized. These sheets are handed to the foreman at the end of the day, and he checks them and passes them to the cost clerk who enters all chargeable time on the various cost sheets.

A cost sheet suitable for an engineer is shown on page 102.

These are numbered to correspond with the numbers in the Order Book, and one sheet is given to each order. It is most convenient to keep these cost sheets on the loose-leaf system. The sheets relating to the work in progress are kept in a binder under

ORDER BOOK

DEPARTMENT.....*Automatic*.....

Date of Order.....*1st January, 19....*

Order No.	Quantity Required	Part No.	Description of Part	Material Required	Is Material in Stock ?	Date Commenced	Quantity
A	*1000*	*100*	*½ in .× 6 in. Bolt Ends*	*Round Iron ½ in.*	*Yes*	*2nd January*	*3 cwt.*

COST SHEET

Order No. ....*A*.... Part No.....*100*..... Description.....*½ in. × 6 in. Bolt Ends*.....

Operations	Time Hr.	Time Min.	Rate	Wages £	Wages s.	Wages d.	Mc. Rate	Machines £	Machines s.	Machines d.	Hourly Burden £	Hourly Burden s.	Hourly Burden d.	Total £	Total s.	Total d.	Remarks
Auto.	*4*	*43*	*9s. per 1,000*		*9*	–	*1s. per hour*		*4*	*9*		*3*	*7*		*17*	*4*	

Materials.....*3 cwt. ½ in. Round Iron*.....

.....*at 48s. 6d. per cwt.*..... | *7* | *5* | *6* |

No. completed.....*1,000*.....

Cost each.....*1·95d.*..... Total Cost £ | *8* | *2* | *10* |

the charge of the cost clerk. When each piece of work is completed, the cost sheets removed, the entries totalled up and the total cost found. The amount which the customer is to pay is entered and the sheets are passed to the accounts department.

The storekeeper should send a statement of all materials issued each day to the cost office. This statement should show the amount of material issued together with the number of the order for which it is required, the description of the stores issued, and the price, if this is known to the storekeeper. A sheet suitable for the raw materials storekeeper is shown on the next page.

The cost clerk enters the particulars on the cost sheet concerned. A record of all raw materials received and issued is kept and the most convenient way is to use cards similar to the specimen shown on page 105.

The statement of raw materials issued is, therefore, passed on to the clerk who keeps the record of the stock, and he makes the necessary entries on the stock card. The same procedure is followed in regard to other material.

The various departmental hourly rate and the rates for different operations are fixed at the end of a trading period, but it is necessary for these rates to be checked more frequently than this so that any alterations which may be necessary can be made. With this end in view forms must be prepared to show the cost and value of the work produced in the factory every week. The time recorded on each worker's daily time sheet is analysed into time which is chargeable to customers and non-chargeable time. The number of chargeable hours, multiplied by the departmental rate, will give the value of production. The cost of production is found for each department by adding the weekly wages for that department to the departmental weekly expenses, these being assessed at the beginning of a trading period, and adding a percentage to cover overhead expenses. A form suitable for this is shown on page 106.

Here we see the cost of production compared with the value of production. If the departmental rates are correct the two totals for each department should almost agree, and any great difference must be due either to abnormal conditions or incorrect departmental rates.

MATERIAL ORDER

Date.....*2nd January*.....

Order No.....*A*..... Part No.....*100*..... Quantity.....*1,000*..... Dept.....*Automatic*.....

Description.....*½ in. × 6 in. Bolt ends*.....

To Stores No.	Please Supply	T.	C.	Q.	Lb.	Price	Cost £	Cost s.	Cost d.
	3 cwt. ½ in. Round Iron		*3*	–	–	*48/6 per cwt.*	*7*	*5*	*6*
							7	*5*	*6*

Purchased from.....*J. Williams & Co., Ltd.*.....

Date.....*20th December*.....

IMPORTANT.

Storekeeper carefully to check that the above issues do not exceed quantity shown on Production Order Sheets and to fill in particulars of weights, sizes, etc.

8—(6075c)

NOTHING MUST BE REMOVED FROM THIS BIN BEFORE ENTERING NUMBER ON THIS CARD

STOCK CARD

Description.....*½ in. Round Iron*..... Minimum Stock.....*5 tons*.....

Date	Received				Taken Out				For Job	Balance				Date	Received				Taken Out				For Job	Balance			
	T.	C.	Q.	Lb.	T.	C.	Q.	Lb.		T.	C.	Q.	Lb.		T.	C.	Q.	Lb.	T.	C.	Q.	Lb.		T.	C.	Q.	Lb.
B. for'd	4	3	0	0																							
Dec. 1																											
Dec. 20	5	0	0	0		3	0	0	*A/100*	9	0	0	0														

RECORD OF COSTS — FINISHED COMPONENTS — Form 7

Description ..... *Bolt ends* ..... Part No. ..... *100* ..... Size ..... *½ in. × 6 in.* .....

Date	Order No.	Quantity	Cost of Materials £	s.	d.	Cost of Labour £	s.	d.	Cost of Machines £	s.	d.	Cost of Hourly Burden £	s.	d.	Total Cost £	s.	d.	Cost Each	Plus Profit	Sale Price or Value of Production
Jan. 2	*A*	*1,000*	*7*	*5*	*6*		*9*	*–*		*4*	*9*		*3*	*7*	*8*	*2*	*10*	*1·95d.*	*1·05d.*	*3d.*

It is desirable that the results shown in the cost accounts should agree with those shown in the financial accounts. A good system of costing does not work on the basis of supposition or guess-work, but is concerned with the recording of actual facts relating to production, distribution, and management. The efficiency of any method of costing will, therefore, depend to a very great extent upon reliable sources of information.

TEST PAPER IX

1. What is the function of the accounting system in a manufacturing concern ?
2. In what respect do the accounts of a small manufacturing business differ from those of a large-scale undertaking ?
3. What is the purpose of keeping cost accounts ? Why are they important in a manufacturing concern ?
4. What information may be derived from a proper system of cost accounts ?
5. Distinguish between Direct and Indirect Expenses, Prime Cost and Total Cost.
6. In what four main divisions of a manufacturing undertaking are expenses incurred ?
7. Draw the diagram on page 99 and explain its meaning.
8. Distinguish between the Total Cost of production and the Selling Price.
9. Write notes on the following—

   Works Order Book ;
   Time Sheet ;
   Cost Sheet.

10. If you were asked to install a system of cost accounts in an engineering business, what procedure would you adopt and what is the nature of the records you would keep ?

CHAPTER X

The Sales Department

The manufactured articles may be divided from three different points of view—

1. *Degree of Readiness.* According to their degree of readiness from the standpoint of the undertaking, a distinction may be drawn between (*a*) the products ready for sale, that is, the finished goods. (*b*) The products which are not for sale but are intended for further treatment in the particular business, that is, intermediate products. Such intermediate products which, in the course of manufacture, do not undergo any substantial alteration, but which in an almost unchanged form are assembled with others into the finished product, are known as parts. These are found principally in the engineering and allied trades. (*c*) The partly finished products which, at a given time, are subject to further treatment in the establishment, that is, the semi-manufactured products.

Sometimes the term " partly finished goods," is used in a wider sense to include all those articles which must be subjected to further treatment in the factory, that is, the intermediate product as well as the partly finished goods still in the process of treatment.

The terms " finished products," " intermediate products," and " partly finished goods " are here considered from the standpoint of the particular undertaking, the same as the raw materials and not according to ordinary usage.

2. *Manufacturer's Intentions.* According to the intention of the manufacturer, the products of an industrial concern may be divided into principal products, by-products, and waste products.

By the term " by-product " is meant a second product which results from the manufacture of a principal product and which in substance and material differs from the main product. For instance, bran is a by-product of the flour mill, cocoa butter is a by-product of the manufacture of chocolate, because grain and bran, cocoa beans and cocoa butter, are different kinds of products.

The difference between the principal product and the by-product is not always determined by the nature of these products, but

sometimes by the purposes of manufacture. It is not an objective but a subjective distinction. Thus, in the case of coke ovens, coke is the principal product and gas the by-product, whereas in gas-works gas is the principal product and coke the by-product. In both these cases, tar and ammonia are also by-products.

The term " waste " signifies material which has been regained in the process of manufacture. These are remnants which in substance are identical with the material from which they have been made, as, for instance, the waste which results from the cutting up of sheet iron, wrought iron, boards, leather, and cuttings resulting from the manufacture of wood and timber. The difference between waste and by-products is of importance in the valuation of these products. Both the above classifications (1) and (2) are frequently confused, although they are based on different principles. A by-product may be a finished article if it is not subject to any further treatment in the particular undertaking, whilst in the other case it is an intermediate or partly manufactured article. Moreover, a finished article may be either a main product or a by-product.

3. *Use.* From the further point of view the products of a manufacturing concern may be divided into three groups according to their use in the particular undertaking—

(*a*) Products which are intended for sale. To this category belong (i) the whole of the finished goods from the standpoint of the particular business ; (ii) some by-products and waste products.

(*b*) Products which are not intended for sale, but for further treatment in the particular business. These include (i) all intermediate products which will be further treated in the particular undertaking. (ii) Certain by-products and waste products. (iii) Finished products, as, for instance, in the case where a tool factory uses some of the tools which have been manufactured in its own works, or an oil refinery which consumes oil of its own manufacture.

(*c*) A special group consists of the partly finished goods which are still in the course of manufacture and whose employment by sale or productive consumption is still doubtful.

The selling department devotes itself to the first of these last-mentioned three groups—the finished products and the waste and by-products which are intended for sale.

ORGANIZATION OF THE SALE. The term "organization of the sale" signifies two different things: (1) Either the organization by function of the work of the selling department of an undertaking which is a branch of the internal management, and (2) it may signify the method and manner of which the goods are sold to the consumer, that is, the technique of selling, such as the fixing of the prices, the ascertainment of the customer's financial standing, the method of advertising, the execution of customs formalities, the disposal of the goods through exporters, commission agents, and other representatives, and the enlistment of such services as the produce exchange, auctions, sample rooms, forwarding agents, carriers, underwriters, etc.

In manufacturing concerns the sales department is generally included in the commercial section. Here, it constitutes the last link in the sequence of commercial operations. Sale is the object of manufacture, and with the completion of the sale the manufacturer concludes his economic activity as a trader. This fact determines the significance of the sales department.

As with the buying department, the sales department has lost much of its former significance owing to the development of combination amongst producers. In such a case the sales departments of the firms belonging to the combine becomes a dependent organ with merely executive functions. In those factories which can dispose freely of their output there is always a special sales department which, in large undertakings, is split up into various sub-departments, such as advertising department, order department, dispatch department, and an export department.

In large undertakings, where the market has been divided into areas, travellers districts, local agencies, this method of division is extended to the organization of the sales department, and it may also be expressed in the selling statistics. Organization on these lines is often expressed on special office maps which show the various selling areas of the business.

In the organization of the sales department on this geographical principle we often find at the head of each section a salesman who is generally a former traveller, who is familiar with the conditions of the area allotted to him. Every area is marked in a special way either by a colour or a letter which is repeated on all forms used.

Sometimes there is a local separation between the factory and the commercial side of which the sales stock-room forms a part. This separation of manufacture and sale has many disadvantages which, however, are of less importance in mass manufacture.

There are manufacturing undertakings which decentralize their sales organization and who, in addition to the main sales room at the head office, maintain various selling organs in other places, such as—

1. Agencies.
2. Branch sale rooms.
3. Subsidiary companies or joint accounts.
4. Independent firms which enter into special arrangements for the sale of the goods.

When there are agents and branches the necessity arises to set up a central organization at head-quarters whose function it is to supervize and conduct the intercourse with these various sales organs. One of the most important duties of such a central organization is to establish the general line of the sales policy, to ascertain the wishes of customers, to supervise the accounts, and to control the finance and the stock of the branch establishment.

In the organization of a sales department of a manufacturing concern there are two types of transactions to be distinguished—

(*a*) *Sale to Order.* In this case the sale is concluded before the manufacture of the products is begun. The contract of sale prescribes in detail the nature of the products, according to the wishes of the customer, and this will determine the subsequent processes of manufacture. Sale to order involves separate manufacture, that is, the separate production of the particular articles on the basis of special plans and drawings or other instructions. Under this heading must also be included the execution of repairs which are undertaken on the instruction of customers.

(*b*) *Sale from Stock.* In this case the manufacture is carried out according to the instructions of the manufacturer himself who anticipates demand. He determines the quality and the characteristics of the product in all its details. For this purpose he usually creates a special department within the technical section which is described as the drawing office. As this determination of the character of the goods to be manufactured must take place beforehand,

it is assumed that there will be a steady demand for the product, otherwise the risk of sale will be too great. In other words, in the sale of goods from stock it is presumed that within a certain range of products there will be a demand for certain types. Hence, we have the manufacture of identical articles according to a limited number of types and patterns.

Sales to order or from stock exert a certain influence on the organization of the sales department. In the case of the sale to order there is no stock of finished product worth mentioning, but there may be a considerable stock of intermediate and partly finished goods. Moreover, in such a case, the order received from a customer is not dealt with directly by the sales department for the goods have first to be made. This takes place through the selling department making a suitable communication to the technical department. In these circumstances the staff of the sales department should consist preferably of persons with technical knowledge. Since it is not a matter of the sale of standardized articles in a state well known to the salesman, but of special articles in which the customer usually desires the advice of the seller, the latter should be a technical expert. These conditions prevail in those concerns which devote themselves to the manufacture of special articles. There are but few industries in this category at the present day, such as the building industry and certain branches of the engineering industry.

In the sale of goods out of stock the sales department manifests quite different characteristics. The sales department is linked up with an important stock of goods ready for sale. This stock is so well assorted that every order may be immediately executed. Such undertakings are engaged in the sale of staple articles of mass production, the disposal of which depends upon the art of salesmanship, and, for this reason, the staff of the sales department should have a commercial training. In general, these are the conditions which prevail in the sales department of those undertakings engaged in mass manufacture. In this class is included by far the greater part of industry such as flour mills, oil, and sugar refineries, distilleries, breweries, electricity works, collieries, brickyards, paper and textile factories, gasworks, glass factories, and the greater part of engineering industry.

Among the duties which are delegated to the selling staff are—

(*a*) The storing of the product ready for sale.

(*b*) The actual sale of the products.

(*c*) The execution of incoming orders, such as invoicing, dispatch, and, in some cases, the collection of the outstanding accounts.

(*d*) The preparation of selling statistics, and the fixing of prices.

THE STOCK OF FINISHED GOODS. The storing of the goods ready for sale is entrusted to a special person, viz. the sales stock-keeper. The storing or warehousing of the intermediate waste and by-products, and also the partly finished goods which are not intended for sale is generally entrusted to the works stock-keeper. The co-ordination of the sales stock-room with the other departments of a manufacturing undertaking varies in different cases. The warehouse may be an independent or a dependent organ, and in the latter case it is co-ordinated either with the sales or with the works department. The former is the more frequent, and the co-ordination of the sales stock-room with the manufacturing department is advisable only under the following conditions, viz.—

1. Where the products require further technical treatment and supervision during the period of warehousing so that the warehousing is practically a continuation of the manufacture.

2. Where the products at the moment of sale are to be subjected to a final finishing process for the purpose of adapting them to the needs of the customers. In this case, warehousing really means an interruption in the process of manufacture shortly before the finishing of the goods.

The importance of the sales stock-room differs according to the nature of the undertaking. It is greatest in those concerns engaged in mass production, which work for stock, and it is less in those which turn out only single articles—where storing on principle merely signifies a delay in dispatch. In these latter concerns, therefore, the stock-rooms of the intermediate or partly finished goods are the more important.

In the organization of the buying department the material stock-room was located behind the buying department. In like manner, the stock-room for finished goods is situated next to the sales department. The sales stock-room is an intermediary organ. It is connected on the one side with the workshops which deliver their

products to the stock-room, and on the other it is connected with the sales and dispatch departments to whom it delivers the articles.

The organization of the sales stock-room is largely concerned with book-keeping, statistics, and control. It has a great similarity to that of the material stock-room and what has already been said about the book-keeping of the latter also applies to the sales stock-room. In the control of the sales stock-room it should be noted that no goods can enter the department without a voucher from the manufacturing department, and no goods can leave without instructions from the sales or invoice department. A matter to be avoided is the dispatch of goods to customers without invoice—a risk which is especially great in the case of those articles which are considered to be of little value, such as waste and by-products. For this purpose the transference of the finished goods to the sales stock-room is accompanied by a delivery note which is made out by the manufacturing department, a copy of this note is also sent to the book-keeping department so that the entry into the stock book may be controlled. Any goods returned by the customers may also be treated as incoming goods by the stock-keeper.

The delivery of the goods to the dispatch department is likewise effected on the basis of a voucher issued by the sales department and described as the *order voucher*. The control may now take a variety of forms, viz.—

1. The voucher issued by the stock-room on which the selling department may mark the forwarding instructions is handed over together with the goods in question to the dispatch department and, ultimately, the vouchers are sent to the book-keeping department. This latter department checks the various instructions with the invoice or with the sales book.

2. Alternatively, the outgoing goods entered in the sales stock book are compared periodically with the copies of the invoices or with the entries in the sales book kept by the sales department.

The function of the statistics of stocks is to keep their quantity within certain prescribed limits. When stocks are too small, this acts as a hindrance in the execution of orders. When they are too high the following disadvantages ensue, viz.—

1. The capital invested in these stocks is withdrawn from productive employment.

2. The stock-room expenses are increased.

3. There is a greater danger of loss whether qualitative or quantitative.

THE ACTUAL SALE. This may consist, in the first instance, of various preliminary activities which, especially with new products or those of mass manufacture, are rendered necessary, such as the ascertainment of demand, the saleability of the products in view of the prevailing market conditions, and, finally, the creation or increase of the demand by appealing to interested parties. This brings us to the consideration of the proper function of the selling organization, that is, the conquest of the market and the acquisition of customers.

The aim should be to effect the largest, quickest, and most regular sale possible. On the magnitude of the sale depends not only the degree of employment in the undertaking, but also the extent of the prime cost of the products. It may be said, on account of the overhead charges, that within a given capacity of production of an undertaking, every increase in the scale of the output signifies a cheapening of the manufacturing process, and that this reduction in the prime cost resulting from increased sales, in turn reacts favourably upon the sales. As is well known, the sale price and quantity of the turnover represent essential factors in the business revenue. The ultimate aim of the business is attained in the realization of a profit through its selling activity.

The best sales organization is unable to neutralize, in the long run, any defects of manufacture, such as high costs of production, and the best technical results may be lost through the absence of an efficient sales organization. Production and sales must co-operate. Experience has proved that a highly efficient works organization must be supplemented by an equally efficient sales organization, and vice versa. The rapidity of sale exercises an influence upon—

1. *The Profits.* The quicker the sale, the greater the turnover within a given period. The greater the turnover, the greater, other things being equal, will be the profit. In the case of some products, their quality or quantity is diminished by storing. A quick sale is, therefore, equivalent to the prevention of loss. Furthermore, the quicker the sale, the smaller will be the stocks, and the expenses

incidental to stock-keeping, such as rent, maintenance, insurance, etc.

2. *Liquidity of the Capital.* The returns of the sale cover the amount of capital locked up in goods. By means of the sale, these investments will be converted into money or into liquid claims such as bank credit, bills of exchange, etc.

The regularity of the sale has the advantage of avoiding the maintenance of excessive stocks. It also offers scope for the better exploitation of the productive capacity of the business by a steady production.

METHODS OF SALE. In the disposal of his products the manufacturer may avail himself of the following methods of sale—

1. Advertising.
2. Personal solicitation by travellers.
3. Opening of branches.

There is no general rule to decide in individual cases what means should be employed to dispose of every article, and each case must be judged on its own merits. In some cases the firm's own travellers will be employed, in others the sale will take place through agents. Again, the manufacturer may appeal directly to consumers, or he may leave the sale to the wholesale and retail trade.

In large undertakings the *system of advertising* has become extremely specialized, calling for the employment of a special staff. In order to be effective, an advertisement must fulfil three conditions—

1. It must be clear and simple. It should, therefore, be characterized by brevity as in the case of a slogan.

2. It must be original to distinguish itself from other advertisements. This end may sometimes be achieved by an artistic drawing or sketches.

3. It must be persistent, and the constant repetition of the motive upon which the advertisement is based constitutes the basis of suggestion.

Finally, the nature and method of advertising depends primarily upon the kind of article which it is intended to sell.

Amongst the *intermediaries* of trade we have to include the commission agent, the manufacturer's agent, and the broker, but only the first two of these enter into consideration in the case of manufactured articles. The commission agent, and especially the

selling commission agent or consignee undertakes the sale of goods entrusted to him on consignment in his own name, but for the account of his principal. In return for his services he is paid a commission and sometimes receives a share of the profits. He may also receive a special *del credere* commission for guaranteeing the payment of his customers' accounts. The selling commission agent is found chiefly in the export trade and is engaged mainly in the sale of finished articles of mass production. Between the manufacturer and the commission agent, however, there is usually an exporter so that the direct connection between the factory and the commission agent is seldom found. The most important intermediary engaged in the sale of manufactured articles is the manufacturer's agent. Like the commission agent, he is an independent trader who is entrusted with the conclusion of business for and on behalf of his principal.

In colloquial language, the managers of branches and the travellers of a firm are usually described as representatives. These persons are in the position of servants to their employers, receiving a fixed salary for their services. For the visitation of the customers, both travellers and agents are employed. In the opening up of new and important business, however, the directors of the firm sometimes undertake personal visits to the customers.

Where the sale is not regulated by agreements with competitors, the conquest of the market by the travellers and agents is the principal object of the selling organization. If this organization is to function properly, the first thing is to decide upon the selling policy, that is, whether the sale is to be effected by the firm's own travellers, by independent agents, or by both. Thereupon, the activity of these persons must be brought under a system of control so that it may be ascertained at any time whether the high cost which such an organization usually demands, bears a proper relationship to the results.

As employees, travellers may undertake isolated trips from the head-quarters or they may make systematic journeys at the end of which they return to head-quarters to report. Or a district may be allotted to them for their activity, and they may take up their residence there. This institution, with a given density of consumers, may be a necessity, for, in addition to the advantage of a saving in

travelling expenses, it also provides permanent contact with the customers. It is these local travellers with a district of their own who are usually described as representatives. Outwardly, of course, they are scarcely distinguishable from the independent agent, for both mediate in the name of the firm.

The position of traveller should be occupied, according to circumstances, by either a commercially or a technically trained person. In those concerns engaged in mass manufacture, preference is usually given to the former, and it is an advantage to take a person who has already been employed in the undertaking, and who is familiar with the methods of manufacture. In addition to a fixed salary, the traveller is paid a commission and travelling expenses, the rate of commission and its method of calculation usually being fixed by agreement. As a rule, the traveller is paid a commission on the basis of the business concluded irrespective of the payment by the customer. The traveller is expected to report to the firm the results of his visits.

Whilst some undertakings employ only their own travellers, others confine their sales to agents. In some cases, both travellers and agents are employed. In this case differentiation must be made between their respective activities which must complement each other in such a way that the agent need only introduce new customers and open up negotiations with them, whereupon the firm concludes the business through its traveller who is a specialist. This supplementing of the work of the agent by the traveller is necessary only where the actual conclusion of the business calls for the assistance of an expert. In this case the agent acts merely as a mediator. He is supposed to discover the demand for the firm's articles, to make personal offers to the customers, to strive to remain in permanent touch with them, and to gain their patronage. The acquirement of suitable agents is a matter of importance. In many businesses, on the other hand, the manufacturer should take care not to become too dependent on his agents. This may easily arise where an agent is entrusted with the conclusion of the business instead of with its mediation only. In such cases, if the manufacturer does not have the customer visited by his own travellers, the relations with the customer are severed in favour of the agent. The customers thus become the patrons of the agent instead of the firm.

The relations between the agent and the firm he represents are regulated by a contract which, as in the case of the traveller, stipulates the commission, and other compensations, and may also contain a clause prohibiting competition. It usually limits the district of the agent and states whether he has to mediate only, or whether he has authority to conclude business.

If an agent who is only entrusted with the mediation of business concludes with a third party a transaction in the name of the principal, the contract is regarded as authorized by the principal unless he notifies the third party immediately on receipt of the order that he does not accept it. Those travellers who are authorized to conclude transactions have also authority to accept payment and to grant credit. The notification of claims and the declaration that goods have been placed at the firm's disposal may be given to an agent as well as to a traveller.

For the proper record of the various transactions introduced by agents and travellers, and of the offers made to customers, many firms keep a special file on the card index system. The cards are filed, not under the name of the customer, but under the name of the district in which they reside. In this way a traveller, when entering upon his journey, can easily ascertain all the particulars relating to the customers in a certain locality.

TEST PAPER X

1. Into what main classes may the finished articles of a manufacturing concern be divided ?
2. Outline the organization of the Sales Department of a large manufacturing concern.
3. Into what two categories may transactions be divided in the organization of a Sales Department ?
4. In what respect does the treatment of Sales to Order differ from that of Sales from Stock.
5. What are the chief duties which devolve upon the selling staff of a manufacturing concern ?
6. Describe the organization of the Sales Stock-room in a manufacturing business.
7. What are the chief methods employed by the manufacturer in the disposal of his products to the consumer ?
8. What are the three conditions which should be fulfilled by an effective advertisement ?
9. In what circumstances is it advisable for the manufacturer to employ agents and travellers in the sale of his goods ?

CHAPTER XI

Works Regulations

In a modern manufacturing concern, with its numerous departments and large staff, certain regulations have to be laid down to ensure smooth working and efficiency. These regulations, broadly speaking, fall under three headings, namely—

(*a*) Those brought into operation by the management of each individual concern.

(*b*) Those resulting from an agreement between the employers' association of a particular industry and the trade unions to which their employees belong.

(*c*) Those laid down by the law in the Factory Acts, Insurance Acts, etc.

Those regulations falling within the first section have to be observed by the employees of the firm, in fact, acceptance of them is one of the conditions of employment. They will include such matters as the formalities governing the admission of new employees to the business, time-keeping, issue of stores, tools, and drawings, fire precautions, and so on. The regulations fixed by agreement with trade unions are mainly concerned with the employment of apprentices, conditions under which overtime may be worked and the rates of remuneration for any such overtime, the rates of wages to be paid to operatives engaged in different processes of manufacture and the number of days allowed on full pay per annum as holidays. Finally, the law through the medium of the Factory and Insurance Acts lays down regulations relating to the minimum age at which persons may be employed, prohibits the employment of women in certain trades, enforces special precautions in certain "dangerous trades," and makes general provisions as regards sanitation and safety.

ADMISSION OF NEW EMPLOYEES. When a new employee is admitted to a business, his employers will require certain information to be obtained from him and placed on record. Whenever a new hand is engaged, an employment card should be made out for him, furnishing particulars as to his previous employers, his reason

for leaving their employ, his character, the date on which he commences work, and the wage at which he starts. Such a card might be drafted out as shown. This card is filed away in a cabinet alphabetically, and on it are noted any increases of wages which may be granted together with any remarks as to the ability and general character of the worker. If he should leave the employ of the firm, the date of leaving should be noted together with the reason, and the card filed away in a " dead " cabinet for reference if required. This is important in a large concern, for a man who has been dismissed for some reason may easily apply for work in another department and remain undetected unless some centralized source of information is available.

When a man enters upon a contract of employment, he undertakes to abide by the regulations laid down by the management of the business. It is obvious that he cannot do this unless he is furnished with particulars of these regulations. In large firms it may be worth while to have these specially printed and in such cases a copy should be handed to every new employee. Other firms, as in the example given on page 123, may have their rules and regulations printed on the back of the weekly wages sheets. Where this is not worth while, typed or printed copies should be displayed in prominent places for all to see, together with any amendments which may become necessary from time to time. Whatever method is adopted, the workers should not be permitted to become acquainted with works regulations by chance, so that in the case of infringement they can plead ignorance of them.

TIME-KEEPING. In every well-managed factory there should be regulations relating to time-keeping. In any concern, no matter how small, in the interests of discipline and efficiency, punctuality on the part of employees should be insisted upon. In a large concern this matter is one of extreme importance, and, unless rules are laid down *and enforced*, the loss to the business may be considerable. Most firms are prepared to allow their employees a certain amount of latitude with regard to lost time. They may, for example, as an act of grace, allow each operative to lose fifteen minutes or half-an-hour in the course of a week without making any deduction from his wages. Methods of procedure vary in different cases. In some factories, the employees are allowed a few minutes grace to

EMPLOYMENT CARD

Name.....*John Jones*..... Date engaged....*1st Jan., 19*.....
Address....*47 Metal Street*,..... Number.....*98*.....
.....*Cardiff*.....
Dept.....*Assembling*.....

Date	Wage £	Wage s.	Wage d.	Extras s.	Extras d.	Total Wages £	Total Wages s.	Total Wages d.	Rate per Hour	Remarks
1/1/27	*3*	*4*	–			*3*	*4*	–	*1/4*	
1/1/28				*4*	–	*3*	*8*	–	*1/5*	

[Reverse Side of Above.]

Previous Employers—

Climax Engineering Co., Ltd.,
Newport, Mon.

Character—

Honest and trustworthy. He is painstaking, and displays considerable ability as a mechanic.

Date leaving our employ
.....

Reason for leaving
.....
.....
.....

Specimen Employment Card

GENERAL RULES

To be observed by all Persons employed by

THE SOUTH WALES ENGINEERING COMPANY, LTD.

1. No person, regularly employed, shall quit or be discharged from these Works without giving or receiving 28 Days' Notice, in writing, before 12 o'clock noon on the first Monday of any calendar month. No wages shall be payable during stoppages arising from breakages or other causes not controllable by the Firm.

2. Any person guilty of neglect—either by not coming to work, or by coming late, refusing to work when requested, or leaving during the " turn " without permission—will be fined Half-a-Crown, or any larger sum not exceeding Two Pounds, in proportion to the damage or loss incurred by causing fuel and materials to be wasted, or men, machinery or horses to be idle.

3. To prevent frivolous excuses in case of absence no plea of illness will be allowed unless due notice be given at the Office two hours or more before the commencement of the " turn "; in addition to which a Surgeon's Certificate must be produced at the Office the following day, stating that the person was unable to work through illness.

4. Any person found wilfully wasting or misappropriating materials, or damaging either wilfully or through neglect, any property belonging to the Firm, will be fined in proportion to the loss sustained, or will be proceeded against according to Law.

5. Any person found in the Works in a state of drunkenness, or bringing or causing to be brought into the Works, beer or other intoxicating liquors, or joining in drinking the same, without the special consent of one of the Agents, will be fined a sum not exceeding 10s. for each offence.

6. Any person guilty of striking, insulting, threatening, or using improper language to any Agent, Watchman, or fellow-workman employed by the Firm, will be fined 10s. for each offence, or shall be subject to immediate dismissal.

7. The fines will be imposed by the Manager of the Works for the time being; these Fines and all other moneys legally due from each person will be deducted from wages, and no wages or arrears of wages will be paid to any person leaving the service of the Firm otherwise than in conformity to the Rules and Regulations which govern the Works.

8. In every case of neglect of duty, or breach of these Rules, the Firm reserves power either to discharge the offender summarily—to suspend any such offender for a period not exceeding seven days—to enforce any of the foregoing Rules and Regulations—or to inflict legal punishment.

9. Each Workman must attend personally to receive the amount of his wages on the pay-day; and any amount not claimed on that day at the time stated for paying the department, will be kept in hand until the following Monday; one week's wages being retained until the due termination of the hiring. All disputes as to the amount to be settled on the Monday morning following the pay-day.

10. Every workman in every department of the Works shall, when required, perform such duties as the Agent for the time being may require, in any emergency, other than the special work he may be engaged in.

11. Notice of any alteration at any time in the Rules of these Works, or in the rate of wages, will be affixed to the door of the office or other conspicuous place, and any and every person who may be unwilling to concur with, or abide by such proposed alteration, is required to make objection in writing to the Proprietors within fourteen days after such notice shall appear, and, in the absence within that time of any objection or dissent in writing will be subject to the notice.

12. Any workman combining with others to stop the Works, or any department thereof, or threatening to do so in order to obtain the dismissal of any person employed therein, or in order to compel any such person to join any union or society, and any workman who shall threaten or molest any person employed in such Works for the purpose of compelling such person to join such union or society, shall be liable to dismissal without notice.

13. Nothing herein contained shall in any way prejudice or affect the rights and remedies which either party might otherwise have under the Laws for the time being affecting Masters and Servants.

BY ORDER.

SPECIMEN SET OF WORKS REGULATIONS PRINTED ON THE REVERSE SIDE OF THE WEEKLY WAGES SHEETS

enter the works after the time to commence work, and when this time has expired the doors are closed, late comers not being allowed to enter until a certain time, and are thus compelled to lose this time as a penalty. In other cases, mechanical time-recording clocks are employed. Each employee is supplied with a card, such as is shown on page 125, upon which he can record the times he enters and leaves the factory. On either side of the recording clock is a rack in which are placed the cards. On arrival at his work the employee takes the card bearing his number from the " Out Rack," and, inserting it in a slot in the lower portion of the recording clock, depresses a lever, thus impressing the time on the card. The card is then placed in the " In Rack." Under this system the worker is penalized by having money deducted from his wages for the time he actually loses.

Although this furnishes an accurate method of recording time, there is always the danger that the practice will arise of one employee " clocking on " for another in order that he may not be recorded as late. It is difficult to guard against this completely since it is not practicable to have someone in authority watching the time clock to detect such evasions. Stringent rules should be laid down against this practice, and anyone caught breaking them should be severely reprimanded and instantly dismissed if caught a second time.

In addition to the time lost through unpunctuality, wastage also occurs in other ways. Unless supervised, some operatives will develop the habit of leaving their own department and wandering about the works, ostensibly in search of something or somebody, but mainly with the view of having a " spell " from work. Not only do such persons waste their own time, but also that of the people with whom they come in contact. Definite instructions should be given on this point, and no man permitted to leave his own department and enter another without express permission from his foreman.

SAFETY REGULATIONS, ETC. In most manufacturing processes there will be a certain amount of waste material created in the course of manufacture. This waste should not be left lying about the floor, but receptacles should be arranged in convenient positions, and floor littering should be made an offence and employees trained

No.....98.....

Name.....*John Jones*.....

Week Ending.....*26th January*,.....*19*.....

Day	In	Out	In	Out	Over-time
A. M. F	*7.30*	*12.0*			
P. M.	*1.0*	*4.30*			
A. M. S	*7.30*	*12.0*			
P. M.	*1.0*	*4.30*			
A. M. Sun.					
P. M.					
A. M. M	*7.30*	*12.0*			
P. M.	*1.0*	*4.30*			
A. M. T	*7.30*	*12.0*			
P. M.	*1.0*	*4.30*			
A. M. W	*7.30*	*12.0*			
P. M.	*1.0*	*4.30*			
A. M. T	*7.30*	*12.0*			
P. M.	*1.0*	*4.30*			

	Hours	Rate	£	s.	d.
Lost Time .	*Nil*				
Overtime . .	*Nil*				
Total .	*48*	*1/7*	*3*	*16*	*0*

Clock Time Card

to regard it as such. Besides causing the factory to assume an untidy appearance, a floor littered with waste material, tools, and other loose objects is a source of potential danger to the employees themselves since they give rise to accidents.

Machinery must, from legal necessity, have its moving parts guarded, but employees are not always sufficiently careful of their own safety, and many accidents are the result of unused or misplaced guards. The management should insist that where guards are provided, they must be in position when the machinery is in motion, and drastic action should be taken against offenders.

In some industries more rigid precautions will have to be taken against fire than in others according to the nature of the material used. When there is considerable danger of fire, the management will usually enforce regulations of their own over and above those prescribed by law. Naked lights may be forbidden in some portions of the factory, and galvanized iron bins provided for any waste of an inflammable nature. Where any considerable danger exists these precautions should be rigidly enforced, and any offenders summarily dismissed.

REGULATIONS GOVERNING PARTICULAR DEPARTMENTS. In addition to general instructions such as the foregoing, others are necessary which apply more directly to particular departments. For example, in the case of the stores department, definite instructions should be laid down governing the issue of raw material. It should be issued in accordance with a specification sheet or order which gives full details of all material required, including any necessary allowance for wastage in manufacture. A definite place should be appointed for the issue of stores, and no one other than the storekeeper and his assistants should be allowed within the store itself. This rule should be clearly stated and strictly carried out, since if unauthorized persons have the run of the store a deal of petty pilfering is likely to ensue. Any infringement should be reported and severely dealt with. On no account should the storekeeper be permitted to issue stores in an irregular manner without the proper requisition, even though asked to do so by a foreman or head of a department.

Instructions must be laid down regarding the issue of tools, plans, drawings, and so on. A tool store is necessary in every factory, in

the absence of which tools are at the mercy of all and sundry. The absence of any record makes it difficult to be certain what tools are actually in existence, and much less where they are to be found. Even in a small factory tools constitute an expense that cannot be lightly regarded, and serious losses may be incurred in connection with them unless precautions are taken. A record of all tools should be kept, and tools issued according to a definite procedure which should be strictly followed in all cases. Each operative may be given a number of brass checks, stamped with his clock number, and whenever a tool is required from the store, he tenders a check in exchange. At the same time he enters the tool number on a paper slip together with his name and clock number, and the storekeeper places this slip behind an index card bearing his clock number. The required tool is handed over, and the check hung over the shelf from which the tool has been taken. When the tool is returned, both brass check and slip are handed back to the worker. When a drawing is required, a slip may be made out by the foreman after the style of the following example, and this is handed to the storekeeper in exchange—

PLEASE SUPPLY BEARER WITH

Dwg. No.....*79*..... Date.....*24th Jan., 19*.....

Signature.....*Robert Smith*..... Check No.....*7*.....

NOTICE

All Blue Prints or W.I.'s to be returned as soon as job is complete, or by 11 a.m. every Saturday. Each man is held responsible for any issued to him until return of his ticket, and will be liable to be charged with cost of replacing any drawing lost or destroyed while in his charge. The value of a full-size blue print is 1s., of a sketch sheet 6d.

All tools, drawings, and so on, should be returned at the end of the week and reissued, if required, at the commencement of the following week.

The packing department will in all probability require certain standing instructions. These may include the mode of packing

and the precautions to be taken against damage in transit. Certain printed literature or instructions may have to be included in every package. Where goods are dispatched by rail, the carrier will be in the habit of calling at a specified time to pick up any goods. The duty of the department will be to see that everything is in readiness when he arrives so that the goods can be handed over without delay. If the firm maintains a local delivery service of its own, any local deliveries must be packed up and ready to leave the premises at the times specified.

REGULATIONS ENFORCED BY TRADE UNIONS. The regulations under this heading are mainly concerned with the hours and conditions of labour. Although the law makes stipulations with regard to these matters, most industries have their own agreements which have been drawn up by the employers' association and the trade unions in the industry concerned. These agreements cover a variety of matters relating to the employment and remuneration of labour which the unions consider essential for the protection of their members, but it cannot be denied that some of these conditions exert a fettering effect on industry, and at the same time are of small service to the workers themselves. Petty restrictions which prevent a man undertaking any work other than his own, even in an emergency are sometimes enforced, on the grounds that by such action another man is being deprived of work.

Some trade unions claim a direct interest in apprenticeship even though apprentices may not be contributors to their funds. In some industries the unions have rules relating to the length of apprenticeship, the age of entry into apprenticeship, the wages to be paid, and the ratio of apprentices to journeymen. These rules may be embodied in actual agreements with employers' organizations, or may be recognized by employers but not embodied in joint agreements. The object of most of these restrictions is to avoid overcrowding the labour market with labour of a specialized type, thus depressing wages. In like manner, an apprentice will often be prevented from attempting any other work than that which falls within the scope of his particular trade.

In the matter of the hours of labour there are agreements in existence between the employers' organizations and the trade unions in nearly all the organized industries, the general effect of

which has been to establish a normal working week of forty-eight hours or less. Where such agreements exist, however, they are not necessarily binding on non-associated employers employing non-union workmen. Not only do these agreements determine the normal working hours of employees in an industry, but also in some cases they contain provisions imposing restrictions on the amount of overtime which may be worked. Thus, in the case of the engineering industry, agreements which have been arrived at by the Engineering and Allied Employers' National Federation, and the principal trade unions in the industry provide that systematic overtime is deprecated as a method of production. They state that no union workman shall be required to work more than thirty hours overtime in any four weeks after full shop hours have been worked, allowance being made for time lost through sickness and other causes. These same agreements usually contain regulations concerning the rates of remuneration for overtime. The workers may be paid at the rate of time and a quarter for periods of overtime not exceeding a specified limit (frequently two hours) or any day, but with higher rates—generally time and a half—for subsequent periods. For week-end overtime the rates are generally higher.

STATUTORY REGULATIONS. For a variety of causes, but chiefly for the protection of the worker, it has been necessary for the State to intervene to some extent in the conduct of industry and impose statutory obligations, for the most part on the employer, but also to a subsidiary degree on the workman. These regulations include enactments with regard to wages, hours of labour, safety, and provisions to ensure the general health of employees. As we have already seen, hours and rates of remuneration are usually fixed by special agreements, but the State establishes certain minimum requirements in these matters for the protection of those who cannot help themselves.

Wages. In the first place the worker may be exposed to victimization in the matter of wages, and the legislature has stepped in with an attempt to avert this danger. There is the danger of the sweated or inadequate wage which has been dealt with by various forms of minimum wage legislation. Though hours and conditions of labour have been subject to State regulation for over a century, it is only in recent years that attempts have been made

to impose minimum wage rates by legislation. As a general rule, of course, this matter falls within the scope of trade union activities, and in most cases the workers have succeeded in bettering their conditions by collective bargaining. A low rate of wages, however, may prevent such combination since the workers cannot provide the necessary funds to fight for better conditions. Following a public outcry against sweating in this country, the first Trade Boards Act was passed in 1909. This Act possesses three prominent features—

(*a*) Minimum rates of wages are fixed trade by trade.

(*b*) The power of fixing such rates is entrusted, not to a Government department or to a judicial or quasi-judicial body, but to a joint board, composed of equal numbers of representatives of employers and workers in the trade concerned, with the addition of a few independent "appointed members."

(*c*) The rates fixed by a trade board, when confirmed by a minister of the Crown, become enforceable either by criminal or civil proceedings, and are enforced at the expense of the Government through a body of inspectors.

The experiment was very successful, and in 1918 an amending Act was passed, which left the general structure of the earlier Act unchanged, and aimed mainly at facilitating the formation of fresh trade boards. Within four years, sixty-three trade boards in all had been established, catering for about three million workers. Generally, it may be said that there is little difficulty in securing compliance among the larger employers, and that the great majority of employees in trade board trades receive at least the minimum.

A second danger that may arise is that an employer may miscalculate the wages actually earned, and the worker will have no adequate means of finding out the miscalculation. Piece-workers are the only ones requiring protection from this. The Factory and Workshop Act, 1901, requires the occupier of every textile factory, for the purpose of enabling each worker who is paid by the piece, to compute the total amount of wages payable to him in respect of his work, to publish particulars (*a*) of the rate of wages applicable to the work to be done ; (*b*) of the work to which that rate is to be applied.

The Home Secretary has power to extend these provisions by Special Order to non-textile factories if necessary.

The workman has also been carefully protected from receiving his wages otherwise than in cash, or from having part of them kept back as a fine or as compensation for bad work, spoilt material, or other matters. This danger has been dealt with by a series of Truck Acts. The Act of 1831 prohibited contracts which directly or indirectly made the workman agree to take his wages otherwise than in cash, which bind him to expend them at any particular place, or in any particular manner. The Act of 1896 deals with the subject of deductions from wages as a matter of: (*a*) discipline; (*b*) compensation to the master for spoilt work and damaged material; (*c*) charges for services rendered by the employer, such as supply of materials, tools, etc.

As already stated, it is an implied term of the service of contract that a worker shall submit to the regulations of his employer's business. Failure to comply with these regulations constitute a breach of contract and terminates the contract. An employer might, in such circumstances, dismiss the worker without notice, but in many cases the offence is not sufficiently serious to warrant such drastic action, and the one other legal remedy lies in an action for damages. It is not practicable to exercise this right for every trivial offence where the loss to the employer is almost negligible, and, hence, the employer frequently imposed fines on his own account for breaches of discipline. The provisions of the Act of 1896 as to disciplinary fines are as follows: There must be a contract with the workman authorizing fines, but it may be made by the employer putting up a notice and keeping it constantly affixed at a place open to the workman. As an alternative there may be a contract in writing signed by the workman.

Hours of Labour. The State has also imposed regulations with regard to the hours of labour. Women and children were the first to receive attention from the legislature, and for a long time no protection was given to men, except that which the regulations concerning women and children afforded indirectly. But just as it has recently been admitted that men as well as women need the protection of minimum wage legislation, so the legislature has gradually come to recognize that some limitation of hours is advisable in certain industries for male labour. The coal mining industry and the railways are regulated by statute in this way. The Factory

and Workshop Act, 1901, contains no direct interference with the hours of adult male labour, but so far as dangerous and unhealthy industries are concerned, the hours of labour can be regulated by Special Orders.

In the case of those engaged in industries to which the Trade Board Acts have been applied, trade boards were given power by an Act which became operative in 1918, to declare the hours normally worked in the trade per week or on any day, and to fix higher rates for hours worked in excess of this number. By December, 1919, practically all trade boards had used this power to declare a normal week of forty-eight hours. The precise conditions existing in each trade are not determined so much by law as by agreements between associations of employers and of workers, and it is only in industries where such agreements cannot be made that there is statutory interference.

Safety Regulations. The field of safety has always been regarded as one in which the State should be operative, and a mass of detailed legislation exists for the protection of the worker. Yet, in spite of the immense progress which has been made, it is now recognized that the ground cannot be adequately covered by statutory regulations, and that much remains to be done in educating individual employers and workers in the importance of "safety first." The chief statutory provisions for safety are to be found in the Factory and Workshop Act, 1901, and also in Special Regulations for dangerous industries.

One of the chief dangers in most factories arises from machinery in motion, and there are certain special enactments for the protection of women and young persons, such as the regulation that no woman or young person shall clean any dangerous part of the machinery in a factory while it is in motion. There are also provisions as to the fencing of machinery for the protection of workers generally such as the following—

1. Every hoist or teagle, and every fly-wheel directly connected with the steam or water or other mechanical power, whether in the engine house or not, and every part of any water-wheel or engine worked by any such power, must be securely fenced.

2. Every wheel-race not otherwise secured must be securely fenced close to the edge of the wheel-race.

3. All dangerous parts of the machinery and every part of the mill gearing must either be securely fenced or be in such a position or of such construction as to be equally safe to every person employed or working in a factory as it would be if it were securely fenced.

4. All fencing must be constantly maintained in an efficient state while the parts required to be fenced are in motion or use, except when they are under repair or under examination in connection with repair.

These, and other general provisions of the Factory and Workshop Act, 1901, do not cover the whole ground, and special cases are met by the power conferred on the Home Secretary to make special regulations for those branches of industry which he may consider dangerous.

Health Regulations. The sanitary condition of factories in general is secured by the following provisions of the Factory and Workshop Act, 1901—

" 1. A factory must be kept in a cleanly state, and for that purpose all the inside walls of the rooms, the ceilings, and all passages and staircases must be limewashed once at least within every fourteen months. As an alternative, they may be painted with oil or varnished once at least every seven years, and washed with hot water and soap once at least within every fourteen months.

" 2. The factory must not be so overcrowded as to be dangerous or injurious to the health of the employees. The standard adopted by the Act is the provision of not less than 250 cubic feet of space in each room to each person normally employed there.

" 3. A factory must be ventilated in such a manner as to render harmless, as far as practicable, all the gases, vapours, dust, or other impurities generated in the course of the manufacturing process, that may be injurious to health."

The occupier of a factory is under the obligation to take adequate measures for securing and maintaining a reasonable temperature in each room in which any person is employed, but without interfering with the purity of the air. Sufficient ventilation must be provided and maintained in every room, and although no fixed standard of ventilation is laid down in the Act, the Home

Secretary has power to prescribe, by Special Order, a standard of sufficient ventilation for any class of factories and workshops.

In the matter of health regulations as well as in the case of those relating to the safety of workers, the Home Secretary can take special measures where necessary. Between thirty and forty of such codes of regulations are in force, mostly very detailed and highly technical. By means of this system of regulations, the British law for the protection of workers in trades involving special risks is kept fully abreast of medical knowledge and scientific discovery, while the regulations are aimed at every kind of special industrial risk—risk of poisoning, risk of infection, risk from injurious fumes and from excessive and injurious dust, risk of accident, and risk of overstrain.

TEST PAPER XI

1. Under what three main headings would you classify the staff regulations of a large manufacturing concern ?
2. What procedure should be adopted when employing a new member of the office or works staff ?
3. Draw up a copy of the employment card shown on page 122 and explain its meaning.
4. " In every well-managed factory there should be regulations relating to time-keeping." Explain the nature of these regulations and state the probable consequences which would result from their non-enforcement.
5. Write brief notes on the following: safety regulations ; departmental regulations ; trade union regulations.
6. What were the main features of the Trade Boards Act, 1909 ? Enumerate its chief provisions.
7. Give three examples of the way in which the legislature tends to regulate the employment of workmen in factories.
8. Say what you know of the provision of the Factory and Workshop Act, 1901, in regard to the regulations of the sanitary conditions in factories.

CHAPTER XII

Execution of an Order

Orders are usually received in one of three ways. The customer may bring his order direct to the office, he may send it through the post, or he may hand it to one of the firm's travellers or agents. In the first two cases the order will probably be on the customer's own order form, and in the third on one of the forms supplied to the travellers. In any case, an order for the goods should be obtained, bearing the customer's signature, thus preventing any possibility of dispute later on as to the quantity or quality ordered. When received, the order should be seen by a responsible person who is in the position to know or ascertain the financial standing of the customer. He will stamp the date of receipt on the form, and add any comment, such as "C.O.D.," and pass the order to the order clerk.

INSTRUCTION SHEET. This latter person will enter the order into an "Orders Received Book" and proceed to make out an instruction sheet for the works. If there are several departments, he may make out a special sheet for each department, or the one sheet may be divided up into sections for each department, in which case the instructions will be entered under the appropriate heading. This instruction sheet should contain the full name and address of the customer, the detailed instructions to each department, the serial number of the job corresponding to the entry in the order book, and the date of delivery, if any. If the job is urgent it may also indicate the time allowed for each department to complete its share of the work.

PROCEDURE IN ENGINEERING FIRM. In the case of an engineering concern, such as is illustrated by the diagram facing page 30, the instruction sheet will now be sent to the drawing office. Here detailed drawings are made of the work to be executed, or, if the same thing has been previously supplied, the previous records are turned up. By one means or another, the drawing office furnishes the necessary drawings. These are forwarded to the pattern-making

department, and when the patterns are made the work will pass to the foundry.

In the meantime, however, the raw material necessary to execute the order has been calculated, and it may happen that, in the case of a special order, as we assume this to be, certain materials are either not in stock or, if in stock, are in insufficient quantities. The storekeeper sends a requisition to the purchasing department for the materials he requires. This is passed by a responsible person, and the materials ordered. This should be so arranged that the materials are in stock, if possible, by the time they are required. It is a sign of bad management if work is held up while materials have to be ordered to execute it. This is a point in favour of having instruction sheets for each department. The storekeeper would receive his at the same time as everyone else, and could order anything required at once, thus increasing the possibility of having the materials in stock by the time they are required. The storekeeper will make a daily return to the cost office of all materials issued, giving particulars of quantities and the jobs for which they were required.

When the foundry has done its work, the order passes into the shops to be worked up. In all these processes, the men engaged will be required to make out daily a return of exactly how they spend their time. They must state the number of the job upon which they are engaged, the class of work done, and the time spent upon it. These are handed to the foreman at the end of the day, and he checks them and passes them to the costing department.

When the shops have finished, the various parts have to be tested and then fitted up. In many cases the parts would be tested at each stage of manufacture, a special department being formed to perform this duty. In a small concern it is usually the duty of the foreman of each department to see that the work is up to the required standard. When the complete job has been fitted up it is again tested and passed to the dispatch department who forward it to the customer. At the same time, an advice note is sent from the office stating the method and date of dispatch. This department also makes a daily return to the office of all goods dispatched together with any charges incurred.

The costing department has now a record of the materials, time,

and dispatching expenses incurred in connection with the order, and after adding a percentage to cover the " factory oncost " can arrive at the total cost of the product. A percentage added to this, as profit, gives the selling price. This information is handed to the accounts department who attend to the collection of the account, and to the financial side of the transaction.

It is desirable that the works office should be able to tell at a moment's notice the exact position of any job in the factory. An index card should be made out for every job which enters the works. This should state the date on which the order was received, a brief description of the work, the customer's name, and the serial number of the job. If separate instruction sheets are issued to each department for every order, these can be returned to the office when the department concerned finishes its share, bearing the date on which the job was finished. This information can be entered on the index card. A better plan is for each department to keep a book in which the date on which they actually receive the job is entered. The information contained in this book is transferred at regular intervals —at least once a day—to the index card. When the work leaves the department, the date also may be noted. As orders are delivered the cards may be removed, the date of delivery stamped upon them, and then filed in a " dead " cabinet. They may be kept for a short time, say, three months, and then be thrown away as they are no longer of value.

TEST PAPER XII

1. Through what three channels are orders usually received from customers ?
2. What procedure should be adopted when an order is received from a person with whom relations are being entered into for the first time ?
3. Copy the diagram facing page 30 and explain its meaning.
4. A special order for machinery is received by an engineering firm. Trace the order from the time it is received in the office up to the point where the machines are handed over for delivery to the customer.
5. Write notes on the following: Purchasing Department ; Testing Department ; Dispatch Department ; Factory Oncost.
6. What are the characteristics of the organization of the business of a manufacturer ? Trace the probable evolution of such a business.
7. You are organizing the commercial side of a manufacturing business. Map out the departments and outline the duties of each.

APPENDIX A

PUBLIC EXAMINATION QUESTIONS

ABBREVIATIONS

R.S.A. = Royal Society of Arts.
N.U.T. = National Union of Teachers.
I.C.W.A. = Institute of Cost and Works Accountants.
C.A. = Institute of Chartered Accountants.

(1) Write as secretary of a limited company to an architect giving him brief particulars of a new factory required by your firm, and instructing him to send preliminary plans. (*R.S.A.*)

(2) Draft a scheme of organization of any manufacturing business with which you are acquainted, and show clearly the various departments into which it is divided and the principle on which the duties are delegated among the members of the staff. (*N.U.T.*)

(3) What is an entrepreneur? How far is it true to say that the entrepreneur is the provider of employment? (*R.S.A.*)

(4) State clearly the general principles of staff organization. (*R.S.A.*)

(5) Distinguish between "line control" and "staff control" in business. (*R.S.A.*)

(6) What is meant by (*a*) standardization, (*b*) mass production? What, in general, are the most favourable conditions to manufacture on these lines? (*R.S.A.*)

(7) Describe the class of products to which mass production methods are best suited; name any disadvantages attached to such methods from the point of view of (*a*) the consumer, and (*b*) the manufacturer. (*R.S.A.*)

(8) Why do business men watch gross profit as well as net profit? (*R.S.A.*)

(9) What is meant by mass production? State in general terms when this method of manufacture is (*a*) particularly suitable; (*b*) unsuitable. (*R.S.A.*)

(10) What form of organization would you adopt for a firm of electric motor manufacturers selling exclusively to machine tool-makers? Outline by chart all sections of the organization proposed. (*I.C.W.A.*)

(11) In your opinion what are the chief causes or sources of waste in industry? What steps would you take in a general way to measure such forms of waste with a view to its prevention or elimination? (*I.C.W.A.*)

12) What is the object of systematic organization in a works? (*I.C.W.A.*)

(13) In constructing an organization for a new factory—

(*a*) To whom would you hold the works or cost accountant responsible?

(*b*) What activities would you recommend should be placed under the cost or works accountant? (*I.C.W.A.*)

(14) Explain the principles on which you would lay out a works, giving such illustrations as are requisite. (*I.C.W.A.*)

(15) Define administrative costs and say whether, in your opinion, you regard administration as a function distinct from manufacturing or selling; state your views fully. (*I.C.W.A.*)

(16) Your firm has been pressed by the manufacturers to install machinery of a new type invented by them. Technical advisers have given the opinion that the cost (as quoted) would be unremunerative unless the existing machinery could be sold at a good price. Write to the manufacturers accordingly. (*R.S.A.*)

(17) Explain the difference between trade discount and cash discount. A manufacturer finds that owing to a rise in the cost of the raw materials he must advance his prices for many of his staple lines of goods. Show how he can do this and avoid the loss of preparing fresh trade catalogues. (*R.S.A.*)

(18) Having received from Messrs. Brown, Jones & Co., of 219 Harrow Road, W.2, an order for 4 dozen 1 lb. boxes of " Excelsior " chocolates at 3s. 6d. per lb., write a reply, informing them that you are out of stock of this particular brand, and will not be receiving further supplies for a month or possibly more, but in the meanwhile you can supply them with " Elite " chocolates at 3s. per lb. (*R.S.A.*)

(19) Messrs. R. Beckett & Co., of Manchester, have written to your firm (The Gramophone Manufacturing Co., Ltd.) inquiring their lowest terms for two gramophones, Style B, and 24 Style G. You are instructed to reply enclosing a *pro forma* invoice, quoting £10 10s. each for Style B, and £3 15s. each for Style G, subject to 5 per cent at one month. Prepare the *pro forma* invoice and a suitable covering letter. (*R.S.A.*)

(20) A Bradford manufacturer quotes cloth to a Genoese buyer at 24s. 9d. per yard *ex* warehouse. The Italian buyer then asks for a quotation c.i.f., in lire, per metre. Work out the c.i.f. price as desired on a shipment of 32 pieces each of 48 yd., assuming that packing charges and carriage to Hull will cost 18s. 9d. per case on four cases each 4 ft. 2 in. × 3 ft. × 2 ft. 6 in.: B/L and shipping charges cost 14s.; freight is charged at 55s. per ton meast., + 10 per cent, and marine insurance is effected at 6s. 8d. per cent for 10 per cent above the invoice value of the cloth.

Exchange £1 = Lr.54.25; 1 metre = 1·09 yd. (*R.S.A.*)

(21) Assume that you are the Bradford manufacturer in the previous question and draft a letter to Liquori Fratelli of Genoa covering your quotation. Point out the uncertainty of the Italian exchange and that, even if the order were immediately placed, the cloth could not be ready for shipment for five or six months. Emphasize the risk of loss by transacting business upon a basis other than that of sterling. Add that, as orders are filled strictly in order of receipt, early acceptance of the quotation is imperative. Suggest that if they accept the quotation they would appreciate the propriety of submitting the names of London or Bradford bankers willing to take up the documents on their behalf; add anything else you please to make your letter a thoroughly good example of modern commercial correspondence. (*R.S.A.*)

(22) Under what conditions are visible index systems most suitable for use ? Describe one form of index with which you are familiar. (*I.C.W.A.*)

(23) Prepare descriptive matter and give rough outline of an advertisement suitable for public press purposes for a gramophone. (*I.C.W.A.*)

(24) Describe two of the following business machines and state what operations each of those described is capable of performing—

Millionaire.
Brunsviga.
Elliot Book-keeping.
Burroughs Listing, Adding.
Monroe. (*I.C.W.A.*)

(25) Correspondence has passed between two firms regarding delivery of goods. The purchasing firm claim the right to refuse delivery and charge extra cost of obtaining elsewhere to supplying firm. Write a letter from the supplying firm to the purchasing firm endeavouring to arrive at a settlement by compromise. (*I.C.W.A.*)

(26) Describe what mechanical appliances are available for handling correspondence in a mailing department (both inward and outward mail). (*I.C.W.A.*)

(27) Draw up a draft specification embodying full technical details for the purchase of any material with which you are familiar. (*I.C.W.A.*)

(28) What are the duties and responsibilities of a storekeeper ? (*I.C.W.A.*)

(29) Describe the routine of that department connected with the stores which is responsible for the receipt of materials. (*I.C.W.A.*)

(30) Describe a system of material control accounts and state in what manner they assist the management. (*I.C.W.A.*)

(31) A large works has a central " scrap store." What accounting method would you recommend in connection therewith ? (*I.C.W.A.*)

(32) Describe very fully a stock record card and show specimen entries, with prices. What means are used to ensure that the records are checked ? (*I.C.W.A.*)

(33) Having determined maximum and minimum stocks in a large store, what is the machinery which should be used to ensure its automatic operation ? (*I.C.W.A.*)

(34) Material which has been issued to one job is returned to store in a damaged condition and is subsequently used on another job. What system should be installed to deal with such cases as part of the regular routine ? (*I.C.W.A.*)

(35) Mention four different methods of remunerating workpeople, and state their respective advantages. (*R.S.A.*)

(36) What are the usual methods of remunerating workpeople ? State shortly the special advantages of each such method. (*R.S.A.*)

(37) Examine from the standpoint of both employer and employed, the relative advantages of time wages and piece wages. (*N.U.T.*)

(38) How is labour organized, and what are the general objects sought to be attained thereby ? (*R.S.A.*)

(39) A manufacturing concern having a number of shops and services

requires a weekly wages analysis. Draft such wages analysis giving all the information which you consider necessary for the local management. (*I.C.W.A.*)

(40) Give a brief summary of the features of the various methods of payment by results in common use, stating the advantages and disadvantages of each. (*I.C.W.A.*)

(41) What practical considerations must be taken into account in framing a scheme of payment by results ? (*I.C.W.A.*)

(42) Give an example of a pay roll you would suggest for a large factory ; how would you organize the work in connection with the make-up of same ? (*I.C.W.A.*)

(43) In connection with a large manufacturing organization what instructions would you, as works accountant, issue with regard to the payment (not calculation) of wages to the industrial staff ? (*I.C.W.A.*)

(44) Compare the merits of premium bonus system as against straight piece-work, and state under what conditions you would suggest the application of each. (*I.C.W.A.*)

(45) Give an example of a form used for recording men's time when working temporarily in a department different from that in which they are usually employed. (*I.C.W.A.*)

(46) In two departments of a manufactory, one of which employs machinery while the other employs none, it is proposed to install " payment by result " in place of the present hourly rates. What system of remuneration would you recommend for each of the departments ? Give your reasons and say whether you would apply the proposed methods throughout each department. (*I.C.W.A.*)

(47) Discuss the following statement : " Piece-work is an attempt on the part of the employer to obtain the greatest output for the least expenditure." (*I.C.W.A.*)

(48) What precautions would you take to ensure that the time spent on jobs is correctly booked ? (*I.C.W.A.*)

(49) How many methods do you know of for booking the worker's time to the various jobs he is engaged upon during, say, a week ? Give a list of such methods and briefly describe each, and illustrate your answer with rulings of forms. (*C.A.*)

(50) A few concerns in this country have adopted the principle of sharing a portion of their profits with their employees, such methods being referred to as co-partnership and profit-sharing schemes, etc. Write a short article setting forth your views on these methods and the advantages or disadvantages attached to each. (*C.A.*)

(51) Describe very briefly the following methods of remunerating labour—

(*a*) Day-rate method.
(*b*) Piece-work method.
(*c*) Taylor differential piece-work method.
(*d*) Rowan bonus method. (*C.A.*)

(52) Discuss the advantage to a manufacturer of a good system of cost accounts. (*R.S.A.*)

(53) Distinguish between (*a*) prime cost, (*b*) factory cost, (*c*) commercial cost. Give an illustration showing the items comprised under each heading. (*R.S.A.*)

(54) Should selling and distribution expenses be separated ? If so, why ? (*I.C.W.A.*)

(55) A large works contains many departments which co-operate in series to produce a finished commodity and to label, pack and deliver it to customers. In arranging a suitable form of costs to include all the above operations, would you group all materials on one line, all wages on another, and all overheads on another, or would you prefer to keep separate the materials, wages, and overheads for each department ? Give reasons for any preferences you indicate. (*I.C.W.A.*)

(56) Give the main headings for overhead expenses in the industry with which you are acquainted and state the sub-headings under each. (*I.C.W.A.*)

(57) Do you consider it essential that the whole of the general or overhead expenses should be absorbed in production cost regardless of the volume during the period concerned ? (*I.C.W.A.*)

(58) What are the duties of a sales manager ? (*R.S.A.*)

(59) State the various ways in which manufacturers of different kinds of goods get their commodities into the hands of the ultimate consumers. Draw a comparison between any two of the methods you mention. (*N.U.T.*)

(60) In general, how does a manufacturer obtain orders for goods ? (*R.S.A.*)

(61) Discuss the various modes of transport available to manufacturers when delivering their products to home consumers. (*R.S.A.*)

(62) What are the relative duties of : a general agent, a particular agent, a universal agent, a commission agent ? (*I.C.W.A.*)

(63) Prepare a publicity campaign for placing a new electric heating appliance on the market from packing to final distribution. (*I.C.W.A.*)

(64) Describe a system for the recording of work in a factory, giving examples of forms to be used. (*I.C.W.A.*)

(65) Draw a progress or history tag from commencement of manufacture to dispatch to customer for any kind of product with which you are familiar. (*I.C.W.A.*)

APPENDIX B

TERMS USED IN MANUFACTURE

Blast Furnace Keeper. The man in charge of a blast furnace and of the men engaged on it. He superintends the charging, slagging, and the tapping of the furnace, and also the making of pig moulds and breaking up pigs for removal.

Borer. A machinist who controls and operates a boring machine which is used for making or enlarging holes in metal, the size of the holes being greater than those made by the driller.

Breaker. One who breaks up pig-iron and scrap-iron ready for charging into cupola. He may perform this work either by hand with a sledge hammer, or by machinery by the use of a power hammer.

By-product. Term for commodities produced incidentally in the course of some manufacturing process, the principal aim of which is another and generally quite different product. Thus, the chief and original aim of the gas industry is the production of gas; but in the course of that production other commodities are made, particularly coke and tar, from the latter of which may be produced ammonia, benzine, and other similar products. These are by-products, frequently described as residuals, though often as important as the original products.

Checker. One who checks finished work for accuracy and soundness of material. He may also, where necessary, check amount of piece-work pay earned. The term is also used with regard to a man who checks and records weights and quantities of material entering and leaving tube mills or departments of mills.

Circulating Capital. This is capital which is either entirely consumed or completely changed by one use, new products absorbing its value.

Closed Shops. Establishments in which trade unionists are not employed. The term is also applied to establishments in which only the members of a particular trade union are able to find employment, neither non-unionists nor members of other unions being permitted to work in them.

Costing Clerk. A clerk who records the wages of the workmen employed, the items of indirect expense, and the cost of materials used in manufacture so that the costing manager may know the cost per unit of output.

Cupola Man. A man who is placed in charge of a cupola which is a furnace in which pig-iron and scrap are melted ready for casting. He supervises the men engaged on this furnace, is responsible for the correct charging with coke and iron, and for the periodic tapping of the molten pig-iron and slag into ladles.

Designer. In the engineering trade this is a senior draughtsman who prepares original sketches of machinery from calculations of

dimensions, according to the stresses and strains to be sustained by each part.

Draughtsman. One who draws orthographic projections and sections, in plan and elevation to scale, of a piece of mechanism from a rough sketch and details supplied by the senior draughtsman. Elaborate drawings are prepared, where necessary, for the guidance of the pattern shop, machine shop, etc.

Erector. One who assembles, fits together and erects machines, and who makes any necessary adjustments in the course of erecting, but he does not prepare or make the parts for erecting. He employs various hand tools to execute the job and works usually from blue prints and specifications.

Estimating Clerk. A cost clerk who works out quantities and prices of materials from current quotations to assist in the preparation of tenders.

Examiner. One who examines engineering products at various stages of manufacture to detect faulty material or bad workmanship. He makes visual examination and tests parts with gauge where necessary for accuracy, and may also examine material and accessories prior to manufacture.

Factory Electrician. A maintenance man who keeps lighting and power circuits and plant in working order. He attends immediately to any breakdown in electric lighting or power circuit, for example, renews blown fuses, and replaces worn brushes on motors.

Fettler. This is a general term used to cover all foundry workers engaged in removing adherent sand from castings, and chipping off any irregularities in the metal surface of the casting, either by hand or by machine.

Finisher. A man who receives roughly turned work and turns it true to gauge on a finishing lathe, and makes the necessary fine adjustments and measurements.

Fitter. A man who prepares parts, assembles and fits together the various portions comprising a mechanism from blue prints and specifications. He may be required to assemble and adjust any kind of mechanism, e.g. delicate engines and tools, or powerful cranes, pumps, etc., but as a rule he specializes in one branch of engineering.

Fitter's Mate. Labourer who keeps tools clean and assists fitter by handing him tools or machine parts during fitting. He also does elementary work, such as tightening up nuts, tapping and screwing, and generally aids the fitter. His precise duties vary in the different branches of engineering.

Fixed Capital. This is capital which may be used more than once without completely exhausting its usefulness, but the use of which adds to the value of new products. Examples are buildings, plant and machinery, tools, etc.

Flat Cost. This includes the cost of the raw materials embodied in the product, plus all charges on these materials such as carriage inwards, dock dues, etc., and also the productive wages paid for converting the raw materials into finished goods.

Founder. The general term for any worker engaged in casting yellow metals. As a rule, the term is made to specify the particular metal worked in, e.g. brass founder, or bronze founder.

Foundryman. The general term for any man who works in a foundry, whether skilled or unskilled, and includes the moulder, the core-maker, and the foundry labourers.

Gauge Maker. A highly-skilled craftsman who has specialized in accurate work. He shapes a piece of hard steel to the rough size of a gauge by means of a lathe, grinds it to the approximate dimensions required, and then brings it to the exact dimensions required by the use of hand tools. He always works to very definite sizes and tests his work with the micrometer.

Hand Moulder. Worker who makes the moulds into which molten metal is poured to produce castings. The mould is usually made of sand which is shaped by means of a wooden or metal pattern, the whole process being performed by hand.

Jig Maker. A tool maker who specializes in jigs, that is, tool guides or templates for repetition work. He cuts a steel plate according to a blue print, and punches the jig as required after accurate measurement.

Lathe Attendant. This is the term used for any operative who is engaged on a lathe, whether of an automatic or a semi-automatic type. His duties vary considerably with the lathe and the type of work concerned and may, in some cases, merely consist in holding the tool to the material, and starting and stopping the lathe for repetition work.

Machine Smith. This is a smith who makes forgings for subsequent machining. The term also includes a drop forger who makes a large number of similar articles on a machine designed for repetition work, popularly known as a mechanical blacksmith.

Oncost. A technical term used in cost accounts to denote all expenditure which cannot be directly charged to the articles manufactured or the work done. The term " establishment charges " is often used with the same signification.

Packer. One who wraps small filled containers (tins, jars, bottles, etc.) in paper and labels them. Other duties include the placing of goods in bales, cases, crates, or other receptacles, packing if necessary with shock-absorbing material, and securing the whole by nailing, cording, or other means. Sometimes the packer also marks or brands the cases.

Pattern Maker. Worker who makes the patterns, usually in wood, which are used by the moulders in a foundry to form sand moulds from which castings are made. As a rule, he receives a drawing of the part to be cast from the drawing office, or may be provided with specimens of the part itself, and from these constructs the pattern in two or more parts in order to facilitate removal from the sand.

Pattern Storekeeper. One who keeps store of patterns, templates, etc., and sometimes also keeps records of the patterns and drawings in use.

Piece-work Checker. One who keeps a record of the output of metal workers on piece-work, for the purpose of calculating the amount of pay earned. This work is sometimes performed by the shop clerk.

Piece Wages. Method of remuneration whereby the worker is paid according to output. A rate per unit of work to be done is agreed upon, and this amount is paid after the execution of the work without regard to the time occupied in completing the task.

Planer. A worker who operates a reciprocating machine which cuts shavings from metal articles to bring them to the desired shape.

Planning. The technique of process research work, and investigations into layout and methods of operation, of determining standard methods and output, and of planning the amount of production per manufacturing unit per unit of time.

Premium Bonus System. A time allowance is fixed for the job, and if it is done in less time, the worker is paid the time rate for the time actually taken, and also a fraction of this rate for the time saved.

Progress Clerk. One who keeps records of the progress of important contracts for the use of the manager. He traces and pushes forward work in its various stages from operation to operation until it is ready for delivery.

Rate Fixer. An official who fixes the piece rate or time limit for a certain piece of work in an engineering shop on the basis of practical experience in many operations. He may himself perform the operations, or may watch and time an average worker.

Sales Manager. The person in charge of the sales department of a firm. He controls and instructs commercial travellers, organizes the advertising and his firm's display at trade or other exhibitions. He also conducts the correspondence on matters connected with sales and interviews prospective buyers.

Smith. This is a general term describing any man who heats iron and steel bars, plates, etc., in a forge to a white heat and then shapes them by hammering on an anvil or other metal block. The work may be done by hand, by a hand-operated machine, or by a power machine, according to the size of the job and also whether it is a special order or merely repetition work.

Standardization. The voluntary fixing of standards of size, pattern, quality, etc., by the representatives of the industries concerned, with the object of limiting the variety of types in use, and by this means eliminating waste of effort, capital, and material, and so reducing the costs of production and distribution.

Stock Clerk. A clerk in the warehouse whose main duty is to keep a record of the kind, grade, and quantity of goods entering the warehouse and from whom they are received. He also records all goods leaving the warehouse and their destination. He keeps a list of the goods on hand so that the manager may order further stocks if necessary.

Stock-room Assistant. One who puts finished goods, as received, in

their proper place in the stock-room. He sorts out goods required to fulfil orders, makes them ready for packing, and does other similar work in the stock-room. Sometimes he also keeps records of receipts and issues.

Store Boy. One who assists in handling, receiving, and issuing of stores, and in some cases keeps records. His precise duties vary in different businesses.

Storekeeper. One who maintains, records, and issues the stores used in manufacture. These may consist of raw and semi-manufactured materials, tools, fuel, oil, spare parts, or other articles required for use in production or maintenance, as distinguished from stocks of finished articles.

Stove Man. A hand who places cores and moulds on the shelves of stoves, or core ovens, to be dried. He must attend to the dampers which open or shut the flues which permit hot gases from the cupola to play on the oven when it is to be heated, and he removes the dried cores and moulds and sends them on trolleys to the casting pits.

Striker. A man who assists the smith in forging metal. He attends to the heating and shaping of the metal under the direction of the smith.

Time Wages. Method of remuneration whereby the worker is paid in accordance with the time spent on the work, at so much per day, hour, or week, irrespective of the output.

Tracer. One who prepares tracings on transparent paper or cloth from pencil drawings originated in the drawing office by the draughtsman.

Wages Clerk. A clerk who prepares the wages sheets of employees, calculates the amount of money to be added or deducted in respect of overtime, lost time, sickness, etc.

Works Clerk. General term for any clerk employed in the works, e.g. time clerk, piece-work clerk, progress clerk, and sometimes wages clerk.

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